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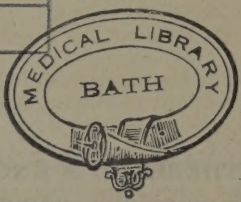
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JULY 1846.

No. 1. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Account of a Typhoid Fever, Apparently Originating in Local Miasma.* By ROBERT CHRISTISON, M.D., Professor of Materia Medica in the University of Edinburgh.

(Read to the Edinburgh Medico-Chirurgical Society, 3d June 1846.)

IN the Reports of the Government Commission appointed to investigate the causes of the unhealthiness of Towns various important facts have been brought forward, to illustrate the connexion of continued fever with emanations proceeding from organic matter in a state of decay. The witnesses may have assigned too wide and too exclusive an influence to such emanations in engendering and propagating fever. But they appear to have established, more clearly than was ever done before, the tendency of putrid effluvia to favour its spread and aggravate its malignity. And they have also gone far to prove, that in particular circumstances, not yet, however, ascertained with any accuracy, the same cause is capable singly of actually generating fever, even in the most malignant form.

Admitting the possibility that continued fever may originate simply in exposure to the effluvia of organic decay—and it appears difficult now to deny this doctrine—a number of deductions will result, which present important bearings on medical practice. One of the most obvious of these is, that continued fever may show itself with the characters of an endemic or epidemic in localities extremely circumscribed.

It is well known, that circumscribed epidemics do occasionally make their appearance;—that continued fever, in the typhoid form, and at times most malignant in type, has been observed to

occur in very limited localities. On such occasions the impossibility of tracing the introduction of the disease to infection, the extreme narrowness of its range, and its virulence within the circle of its influence, have been peculiarities which distinguished it, in the eyes of all observers, from continued fever in the usual epidemic forms,—exciting at the same time much speculation as to its nature, giving rise to plausible, though unfounded, suspicions of poisoning, and leading in the end to no very satisfactory explanation of its origin. There can be no doubt, however, from recent experience, that events of this kind might have frequently admitted of an easy interpretation, had the observers of them been sufficiently aware of the liability of fever to arise from the insidious emanations of concealed organic matter in a state of decay.

These reflections have been suggested by a remarkable incident which lately excited a strong sensation in the neighbourhood where it happened, and which at the time went the round of the newspapers as a mysterious occurrence. Having been consulted on the occasion in two capacities, first, as physician simply, and afterwards medico-legally by the public authorities, I was led to inquire with some care into the details; which have since appeared to me so interesting, that, with the consent of the medical practitioner principally concerned, I have ventured to lay a statement of the leading facts before this Society. The statement which follows is derived partly from my own observation and inquiries, when consulted respecting two of the cases, partly from a Precognition by the officers of the Crown, which was subsequently put before me for my opinion, but chiefly from answers to queries since submitted by me, with a view to publication, to Mr Macnab, surgeon at Peebles, who originally attended all the cases, and who has investigated the particulars on the spot with great care and fidelity.

In a thinly-peopled rural district of Peeblesshire,—the locality will be particularly described hereafter,—Mrs W. the wife of an extensive farmer there, was attacked on the 22d of January last with rigors, general prostration of strength, and great disinclination for food; to which occasional vomiting was added five or six days afterwards. She was visited for the first time professionally on Friday, the 30th January, by Mr Macnab; who found her in the following state, as I shall give it in his own words. “She complained of rigors, pains in the back and limbs, headache, a little intolerance of light, slight sore throat and dryness of the mouth, a painful sense of palpitation along the course of the descending aorta, nausea and desire to vomit, with occasional fits of vomiting, thirst, want of sleep, total loss of appetite, and great exhaustion. The pulse was 92 and feeble, the tongue covered with a very thick brownish-yellow fur, the back of the throat somewhat red, the vomited matter partly mucous, partly bilious, the bowels constipated, the evacuations dark and offensive, and the urine unusually yellow, as if bilious. The countenance had an anxious expression,

and the eyes were suffused; but there was no appearance of petechial eruption either at this time or subsequently. The temperature of the body, and of the extremities more especially, was lower than natural. There was no pain in the epigastrium or in either hypochondriac region.—Under the use of frequent laxatives and diaphoretics she gradually recovered. On the 9th of February she was able to take food with relish, and for some days had been without any tendency to vomiting, so that she was left as convalescent, but with instructions that assistance should immediately be procured if any unfavourable change presented itself." Having heard nothing farther of the case for four days Mr Macnab went on the 13th to inquire for her; and, to his surprise, found her labouring under all the former symptoms in an aggravated degree. "The thirst was intense, the nausea and vomiting very troublesome, the pulse 100, small, feeble, and intermitting, the tongue covered with a very thick, dry, yellowish-brown coating, the bowels very constipated, the evacuations dark, bilious, and fetid, and the vessels of the conjunctivæ much injected. But there was still no pain in the abdomen, and no appearance of petechiæ anywhere; neither was there any wandering of the mind. The remedies which were formerly of service had now no effect; the more urgent symptoms went on steadily increasing; on the 16th towards evening articulation became indistinct, and her words for the first time incoherent; and at six o'clock of the same evening she expired. An inspection of the body was not allowed. It presented after death an emaciated appearance, and a peculiar yellowish colour, but no tumefaction." Mrs W. was seventy years of age, but had long enjoyed excellent health.

The next case was that of her husband, Mr W., also a hale old person of seventy. He was taken ill on the 25th January, within three days after his wife. His illness commenced in the same way. On the 30th Mr Macnab found him labouring under symptoms precisely similar to those described above, and nearly the same in degree, except that he had not so much prostration of strength, being able to sit up at the fireside. The pulse was 92, and of moderate strength. Like his wife also, he improved under the administration of laxatives and diaphoretics down to the 9th February, when the vomiting had ceased, the appetite was tolerable, and he felt himself able to leave his bed. After this, however, the same symptoms recurred; on the 13th Mr Macnab found him greatly worse; remedies were no longer of any avail; and he died on the 18th, two days after Mrs W.; his mental faculties continuing, as in her case, unimpaired till a few hours before dissolution. The body, after death, had a yellowish sallow appearance, and speedily began to decay.

The third case in point of order was that of Mr G. W., the son of Mr and Mrs W., who was taken ill on the same day with his father. But it may be as well to take notice in the first instance

of the fourth, because it was the only other that proved fatal. This was the case of a servant girl in the family.

The disease under which Mr and Mrs W. died presented the characters of ordinary typhoid fever, but with certain peculiarities; and it proved fatal, like many cases of ordinary fever, about the close of the third week. The servant, Isabella M., aged twenty, was seized on the 26th January with rigors, vomiting, loss of appetite, and prostration of strength, exactly as her master and mistress before her. On the 30th Mr Macnab found her affected, like them, with "pains in the extremities, slight sore throat, nausea, and frequent vomiting, palpitation of the heart, and a troublesome pulsation in the descending aorta, urgent thirst, total loss of appetite, complete want of sleep, and great debility. The pulse was 112, and small, the tongue covered with a very thick yellowish-brown fur, the temperature below the natural standard, with occasional rigors, the bowels constipated, and the evacuations dark and offensive." The symptoms therefore were precisely the same as in the previous cases. But their progress was very different. For no abatement was accomplished by treatment; her strength was quickly exhausted; and she died in the afternoon of the 1st February, within six days and a half after being first taken ill. In her instance death was preceded for twenty-four hours by some delirium and considerable stupor; but in no other case were these symptoms so well marked as to attract notice. The body after death presented the same yellowish sallow hue of the integuments, as in the cases of Mr and Mrs W.

These were all the fatal cases. In addition twelve other individuals were more or less severely attacked with similar symptoms to those detailed above; and three or four other persons were more slightly affected, whom however Mr Macnab did not attend professionally, and concerning whom consequently he derived his information at second hand, and in a way not quite satisfactory to his mind. It is unnecessary to describe all these cases, as they presented a singular uniformity of characters. Two only may be added, the one as an example of the disease in its severe form when not fatal, the other to exemplify the mildest form.

Mr G. W., son of Mr and Mrs W., aged about 27, "after being absent from home for about three weeks, returned with his sister from the Island of Skye on the 19th January, three days before his mother took ill. On the 25th, six days after his return, he was seized with nausea, tendency to vomit, thirst, disinclination for food, considerable prostration of strength, and slight headache. He continued in this state, sometimes confined to bed, sometimes going about a little, until the 28th, when urgent business compelled him to proceed to Edinburgh, a distance of twenty-two miles. He went thither on horseback, feeling sick and uncomfortable on the way, and vomiting a little; but he was able to remain in town till the 30th, and afterwards to ride back to the farm, where Mr Macnab

saw him next day. He then felt better, but still complained of sickness, tendency to vomit, slight headache, some sore throat, and little appetite for food. The pulse was 86, and of moderate strength; and the tongue was covered on every part but the mere edge with a very thick, yellowish-brown fur. Subsequently he became worse. The vomiting gradually increased in frequency, and the vomited matter acquired a bilious appearance. The bowels were obstinately costive, and the evacuations dark and bilious. The urine seemed as if loaded with bile. The lining membrane of the throat was slightly red, and the vessels of the conjunctivæ were full of blood; but there was no appearance of petechial eruption on the skin. He continued much in the same condition till the 9th February, when he became considerably better, so that he could even take a little food with relish. But on the 13th he was much worse again. The vomiting had become urgent, the thirst extreme, and the desire for food altogether gone. The pulse was about 90, rather feeble; and the tongue loaded with a yellowish fur as before. He now also complained of severe pains in the limbs, especially below the knee joints, down the front of the tibiæ, and also to a less degree in the arms and hands. He described this sensation as a painful uneasy numbness, causing incessant restlessness and change of posture; it was attended with coldness of the integuments to the sense of another person; and he derived no relief from the warm bath or hot fomentations. No change for the better having occurred in five days more, he was removed on the 18th to Edinburgh. He bore the journey well, and under the care of Dr Begbie, began speedily to improve." On the 20th, I saw him in consultation with Dr Begbie and Mr Macnab, who came to town on purpose. The vomiting had ceased: but the pulse continued about 90 and rather weak, the tongue much loaded, though less so, the bowels difficult to move, and the desire for food still altogether wanting. The pains in the limbs were also distressing, and occasioned much restlessness and want of sleep. There was a good deal of languor; but he conversed without difficulty. The countenance and skin generally were pale, the eyes clear and not injected, the expression not oppressed; and altogether the general physiognomy of the disease struck me at once as different from that which has long been familiar to me as characterising the several forms of the infectious typhus of this city. Under the use of laxatives, calomel, diaphoretics, morphia at night, and tonics, the patient gradually threw off the more urgent symptoms, and was restored to a state of good general health. But the painful uneasiness of the limbs continued without material abatement. Even so lately as the 4th of May, more than three months after he was taken ill, Mr Macnab wrote to me, that "the legs are somewhat swelled from the knees downwards; he complains of a sense of uneasy soreness in them, together with a numbness and want of the feeling of pain when the skin is pinched; he walks with very

great difficulty; and altogether the affection seems to be of the nature of partial and incomplete palsy." [He continued in the same state on the 8th June.]

A short example of the slightest form of the disease will now conclude the narrative of cases. "Marion H., daughter of one of Mr W.'s ploughmen, residing within two hundred yards of the farm-house, had been frequently in the house milking the cows and taking occasional charge of the two domestic servants while sick. On the 1st February she was seized with nausea and desire to vomit, thirst, and the other early symptoms mentioned above. The pulse was 96, the tongue furred, the bowels constipated; but the thirst was not urgent, and the sore throat inconsiderable. Under the use of laxatives and diaphoretics she gradually recovered, and in ten days she was able to be out of doors. On the 4th of May she was in excellent health, and engaged in her usual occupation as a farm servant." Neither this patient, nor any other but Mr G. W., and another girl, a house servant, suffered from pains of the extremities or incomplete paralysis.

The foregoing cases will serve to illustrate the characters of this little epidemic, so far as the symptoms are concerned. I regret that no opportunity occurred for illustrating its pathology by ascertaining the morbid appearances. Some important circumstances remain to be stated in regard to its appearance and propagation.

At the time it broke out in the farm-house, no disease of the kind was known in the neighbourhood. Mr Macnab thinks he saw in his country rounds a few scattered cases somewhat similar to those of the W.'s and their servants; but none happened in the vicinity. There were fifteen people either residing in the house, or much in it during the day; and every one of these was taken so seriously ill as to be obliged to give up work, and to require medical assistance. Three or four others, who had been occasionally in the house, were also said to have sustained slight attacks; and two or three visitors, who were in the house after Mrs W. took ill, remarked that they were sick and uneasy at stomach, and disinclined to take food. Of the fifteen frequenters of the house who were attacked, all were seized in rapid succession within fourteen days after the first case occurred. The first person taken ill was Mrs W., on the 22d January; Mr W. and his son were both seized on the 25th; one of the domestic servants on the 26th; another domestic servant on the 28th; Miss W., the farmer's daughter, on the same day; and all the farm-servants in the course of the ensuing se'nnight. On the 30th, nine days after Mrs W. was attacked, Mr Macnab found eleven persons ill. The case of Miss W. was somewhat remarkable in its circumstances. She had been for at least three months from home, residing on the island of Skye; returned with her brother on the 19th January, three days before the first case of disease occurred; and in nine days was attacked with the same symptoms as the others, and suffered severely. I saw her as well

as her brother, along with Dr Begbie and Mr Macnab, on the 20th February, when she was almost convalescent; and, as in the case of her brother, I was struck with the physiognomy of the disease as presenting something very different from that of ordinary infectious typhus at the same stage,—the countenance being pale, the eye lively, the expression natural and by no means oppressed, the mind clear and alert, and the strength far from so prostrate as it is usually observed in early convalescence from our late epidemic typhus.

It appears that in the whole fifteen cases the symptoms in their nature and succession were generically the same, and with but few specific peculiarities in each; the only important specialties indeed being early death, with precursory coma, in the servant girl, Isabella M., and consecutive neuralgia with incomplete paraplegia in the instance of the younger Mr W. and the servant girl alluded to. The leading symptoms were those of great gastro-intestinal derangement, nausea, vomiting, loathing of food, an excessively loaded tongue, and obstinate constipation; the accompanying fever was slight, and in its type adynamic; exhaustion of the nervous system, without any particular cerebral oppression, except in the single case of the servant girl, was the principal consecutive danger incurred; and in no instance was there detected any trace of the petechial eruption, which has been so general for some years past in the infectious typhus of this country.

The disease attacked most severely without exception those who resided night and day in the farm-house. Three out of six of this denomination of cases proved fatal; and the least severe case was that of the daughter of the family, who, until nine days before she took ill, had been from home for three months. On the other hand, the slightest forms of the disease, without exception, occurred among the farm servants; who, though much in the farm-house through the day, slept in their cottages, a few hundred yards off, and lay there after being taken ill.

Another remarkable fact is that the malady, which spared not a single individual who came fairly within its grasp in the farm-house, was nevertheless not communicated to any one else by those who were there attacked by it. If it spread simply by infection, the infection must have been virulent almost beyond example for typhoid fever; since every person directly exposed was attacked. And yet no fewer than eight of the sick lay while ill in cottages inhabited by other members of their families, without a single case of propagation of the disease having been observed in these localities.

It is no wonder, then, that the pestilence appeared to the neighbourhood unaccountable. The general character of the symptoms, the great mortality, the narrow, well-defined bounds of its ravages, its unsparing sweep within this circle, the swiftness with which it embraced all within its grasp, its non-communication by the sick to those who had not been in the original locality, showed habitudes

very different from those of our ordinary epidemic fevers. Add to all these things the nature of the locality; and the mystery of the case appears at first even greater than before.

The farm-house is situated near the confluence of the Line and Tarth. Both streams flow through rather open valleys, here and there under the plough, and bounded by beautiful pastoral hills rising about a thousand feet above the cultivated fields. There is but little wood within a circle of a mile from the house. The country is in general drained and dry; but to the westward the fields on the north bank of the Tarth are extensively irrigated with fine river water. The house is placed on the north bank of the Line, near the junction of its tributary the Tarth; the elevation above the bank of the stream is considerable; the farm-steading is placed on rising ground behind the house; and behind that again there is about a third of a mile in breadth of waving cultivated land, bounded by one of the green grassy hills that cover a great part of the surface of Peeblesshire. Nowhere around is there a cooped-up population, among which infection may lurk unseen, to invade from time to time the neighbourhood. The population of the district is purely rural, and very thinly scattered; there is scarce even a hamlet nearer than the small straggling village of Newlands on the Line, two miles to the northward; and the only town within easy reach is that of Peebles, about seven miles distant. A healthier locality could not well be chosen. Some may object to the vicinity of the irrigated meadows. But it is scarcely necessary to observe, that frequent experience has shown the harmlessness in Scotland of meadows irrigated with pure water; and besides, the nearest point of these meadows in the present instance is about half a mile from the farm-house.

The disease then appeared unaccountable in its rise. In the neighbourhood it was consequently regarded as mysterious; and naturally enough it was ere long ascribed to poison. No particular poison however was suspected; and fortunately no particular individual. But in such a conjuncture rumour must impute blame in some quarter. On this occasion it fell upon the medical attendant of the family, who was charged with misunderstanding the nature of the cases under his charge, with having been too slow to suspect their true cause, and having thus failed to detect the poison. In such circumstances medical men have sometimes allowed themselves to be carried away by the general voice, and grievous consequences have resulted. But Mr Macnab had observed the whole circumstances with care, and weighed them with discernment; and he refused to countenance the public clamour.

Matters had been but a short time in this state, when I was consulted along with Dr Begbie in the cases of Mr G. W. and his sister, and was made acquainted with the particulars of the occurrence, though not in such detail, or so precisely, as they have been now stated to the Society. The first idea that suggested itself was

the probability of the malady being produced by the use of meat from diseased animals. But this view was at once set aside; for, besides that persons who suffer from diseased meat are generally affected with diarrhœa, not with obstinate constipation, it was carefully ascertained that not a single case of natural death had occurred among the domestic animals of the farm for a long period before; and the farm supplied what meat was consumed by the inhabitants. In the next place poisoning with ordinary poisons seemed to be out of the question. None of the ordinary poisons had been used or seen about the farm for a long period; three of the parties who suffered had never taken any food or drink in the farm-house, although frequently within it in pursuit of their occupation; and besides, what poison is there, which is known to be capable of causing such effects? Thirdly, a general endemic influence, or malaria, appeared equally inadmissible. Neither the irrigated meadows, nor any other general cause could produce a malaria, which should fall with such virulence on a single house, but entirely spare all others in the valley. Fourthly, the want of resemblance to the habitudes of ordinary epidemic or infectious typhus, already adverted to, struck the attention as something very remarkable. The disease was a typhoid fever, but yet not the typhus with which all are familiar. The invariable violence of the gastric symptoms, by no means a usual circumstance in the typhus of Scotland,—the nervous exhaustion, not incapacitating however from prolonged exertion and fatigue, without injury,—the absence of cerebral oppression except in a single instance,—the extreme swiftness of death in that instance,—the non-appearance of petechial eruption in any case,—the physiognomy of the disease, at least as seen by me in its middle and convalescent stage,—and lastly the seizure of every habitual frequenter of the house, with the non-communication of so virulent a disorder to any of their families living elsewhere,—these circumstances formed a crowd of distinctions which severed the epidemic from ordinary typhus as now and lately prevalent in Scotland. A local malaria was the only conceivable cause left for consideration. No source however of local malaria was known. But, having in my recollection the Reports of the Health of Towns' Commission, happening to be well acquainted with the locality, which I have described above from personal observation some years ago, and remembering that the farm-yard is placed on a rising slope behind the house, I suggested that the drains might be defective, and that inquiry should be made, whether the soil around, and possibly even under the house, had not become in consequence impregnated with decaying animal matter.

Meanwhile the rumour of poisoning gained ground, and at length reached the authorities of the county in a shape which rendered a legal investigation indispensable. The subject was then brought before me a second time on the 10th of March for my opinion on the

Precognition taken by the Procurator Fiscal,—with the facts somewhat more precisely stated, though not so as to affect the opinion previously formed,—and with the not unimportant addition, communicated to me by Mr Macnab, that during the occupancy of a previous tenant the farm-steadings drains had been repeatedly choked up, so as to require being thoroughly cleared. It is unnecessary to reproduce here the report returned to the law officers of the county. Its substance may be anticipated in a great measure from what has been stated above. Feeling however the necessity of caution in circumstances so peculiar, I did not represent poisoning as altogether impossible. All slow and insidious poisons, with whose effects toxicologists are now acquainted, seemed entirely out of the question, except arsenic; and all that is accurately known of the effects of arsenic as a slow poison presents nothing precisely similar to the phenomena observed on this occasion. But the truth is, that the knowledge hitherto possessed of the action of arsenic on the human body, when insidiously introduced in continuous small doses, is either scanty or vague. I therefore limited myself to the opinion that the particulars of the incident did not correspond with any thing yet known of the operation of slow poisons; that I could not altogether exclude the possibility of arsenic being concerned; but that this question might be at once settled by an examination of the body of the servant girl, in whom, by reason of the rapidity of the fatal event, arsenic, if really the cause, would be detected by analysing the liver.

This report had scarcely left my possession, when all farther inquiry was rendered unnecessary by information received the same day by Dr Begbie in a letter from Mr Macnab, stating, that he “had made a searching investigation into the state of the drains and sewers at the farm-house, and found them all closed up and obstructed with the accumulated filth proceeding from the necessaries and farm-yard. The effluvium,” added he, “proceeding from these sources when I was there, though much of their contents had been removed, was very offensive, and was diffused in the atmosphere to a considerable distance around.” I have been since favoured with a more precise account of the structure and condition of the drains. The farm-yard extends backward immediately from the house, without any interval. On each flank of the farm-yard, and outside the walls, there is a covered drain, which ends close to each side of the house. One of these side drains receives, besides the ordinary drainage of the farm-yard, the contents of three privies situated about fifteen yards from the house. A drain also extends transversely just behind the house; and various small drains join those already described. There is a small run of water through the flank drains, but always insufficient, and in the summer often dried up. The drains had never been cleared out or examined during Mr W.’s occupancy of the farm, extending to a period of nearly three years. On the present occa-

sion they were found all choked up with "an immense accumulation of animal matter," which infected the surrounding air to a considerable distance in the neighbourhood when the drains were cleared. It is scarcely possible but that the adjacent soil was impregnated with the pent-up pollution; but no inquiry was made as to this point; nor indeed would it have been easy to accomplish this satisfactorily. Enough perhaps has been already stated to bear out the opinion at which Dr Begbie, Mr Macnab, and I arrived on considering the whole circumstances of the case at an earlier period; but it is not unworthy of being added, that the farm-yard stuff had been allowed to accumulate to an unusual extent during a winter of unprecedented mild weather; and that a part of the accumulation had been heaped up very near the back wall of the house.

I apprehend, then, that the nature of this at first incomprehensible disease has in the end been satisfactorily explained. No one at least can entertain doubts on this head, who has perused with attention and impartiality the Reports of the Health of Towns' Commission.

A variety of questions, important alike in a scientific and practical point of view, might be suggested by reflecting on the narrative just submitted to the Society. Among these the most fundamental are the two following: First, was the disease, notwithstanding certain peculiarities in the symptoms, essentially the same with the ordinary epidemic typhus of the larger towns in Scotland?—and secondly, granting it arose from local miasma, as I believe it to have done, is the fever so engendered capable of propagating itself by communication from the sick to the healthy? But the present occasion is not a fit one for entering on the discussion of either of these questions; for the facts are not adequate to bear out a confident conclusion. Let me merely observe that on the one hand, any person conversant with the common typhus of towns must have seen something peculiar in this little epidemic; and on the other, that no instance did occur of its spreading in cottages at a distance, among those who did not frequent the farm-house, but who attended the sick at their own homes.

In conclusion, let it be observed, that, although this incident has been described with care, on account of its apparent rarity, it may be strongly suspected to be not so uncommon as a hasty consideration of the subject would indicate. Other farm-yards besides that of Mr W. are placed disgustingly near the dwelling-house; and other farmers are reckless of the consequence of accumulation and bad drainage. Country practitioners are well aware that such localities present instances, apparently unaccountable, of erratic or even sometimes epidemic malignant fever. I have lately been informed of an instance, which happened in Stirlingshire not long before this one in Peeblesshire, of a farmer's family, four in number, having been entirely swept away in a very short time by a malignant

typhus. An occurrence so startling and unusual might deserve an attentive investigation. But it happened at too distant a date to admit of being now inquired into with success. Meanwhile, if on similar occasions medical men in rural districts will keep in mind what has lately happened in Peeblesshire, they will probably be able to show that the incident there is by no means unexampled.

ARTICLE II.—*Case of Suicide by Prussic Acid*, with Observations by J. G. FLEMING, M.D., Surgeon to the Royal Infirmary, Glasgow, &c.

(Read to the Medico-Chirurgical Society of Glasgow, 12th May 1846.)

THE great facility with which suicide or murder can be accomplished by prussic acid, has naturally led to its frequent employment for the perpetration of these crimes. Of late years, its use has become alarmingly common,—twenty-seven cases of suicide or poisoning by this liquid having taken place during 1837-38. Under these circumstances, every case which can throw any light on the symptoms or pathological appearances which follow its exhibition, deserves to be accurately examined and recorded; particularly as, from its fearfully rapid action, without leaving any external mark on the body, death from its use is more likely to be considered as the consequence of natural causes, than when produced by any other poison with which we are acquainted; besides, it is only by a careful examination of its effects on the human body that we can ever hope to arrive at a knowledge of any means for arresting its activity, or of discriminating whether it has been taken spontaneously, or administered by the hands of another.

A gentleman, aged about forty-five, of stout muscular make, called at a tavern which he was in the habit of frequenting, on the 23d of April 1846, at five o'clock P.M. He is stated to have complained of being faint, asked to be allowed to rest in another room, and to have a glass of water; he appeared agitated and breathed somewhat laboriously, but perhaps he was slightly intoxicated. He was shown into a room, and took his place in a reclining position on the end of a sofa; a tumbler, about three-fourths filled with water was placed on a table at his right side; he cannot be said to have been left alone for an hour after this, as a party were for some time drinking in the same room, and the attendants were also occasionally in it. About six o'clock, *all* the glasses were removed, with the exception of the tumbler of water which had been given to him, the door of the apartment was shut, and he was left alone, occupying a similar position on the sofa to that already mentioned, and breathing heavily as if asleep. About three quarters of an hour now elapsed before any one entered the

room, when he was found in the same position, but sitting more erect, his head leaning forward, his arms lying easily by his sides, but quite motionless. This was about a quarter to seven o'clock. I was immediately sent for, and saw him in less than five minutes. I found him stretched on his back on the sofa, and quite dead; there was not the slightest action of the heart or lungs, and, from the coldness of the face, forehead, and hands, I inferred he had been dead for half an hour. His features had a remarkably composed expression, as if he had died easily, his lips had some colour, his jaws were closed, eyelids quite shut, cornea prominent and glistening, the pupils about half dilated. I opened two veins in the right arm, to satisfy the numerous bystanders, but no blood flowed.

On examining his person, shortly after this, I found in the trousers pocket of the left side a half-ounce vial, *loosely corked*, labelled "Prussic acid," having a strong odour of that liquid, and wet as if recently emptied. I now examined carefully, but I could not detect the characteristic odour of the poison in the room, or from his mouth. A small quantity of fluid, I am satisfied it was water, had been spilled on the floor close to the sofa; neither this nor the water in the tumbler had the most distant smell or taste of prussic acid, and the landlady stated that the tumbler was nearly as full as when she handed it to him.

The body was inspected sixty hours after death; in this and in all the chemical researches for hydrocyanic acid, I was kindly assisted by Dr John Crawford, Professor of Forensic Medicine in the Andersonian University. We could not detect any odour of prussic acid from the mouth or body. Features full—expression composed and as if asleep—cheeks not even devoid of their natural ruddiness—cornea prominent, though not so much so as immediately after death—eye glistening as in life—pupils about half dilated—rigidity of limbs much as is usual at the same period after death—abdomen had a greenish tint, indicating the commencement of putrefaction. The posterior part of the head, trunk, and limbs, were of a red colour, which did not disappear on pressure. The mouth was firmly closed, and no fluid had been discharged from it. The right sleeve and side of shirt were stained with bloody serum, which had oozed freely from the veins which were opened in the arm.

Head.—On separating the scalp the veins discharged blood freely, and on removing the skull-cap, blood exuded copiously from innumerable points of the dura mater, which membrane was unusually adherent to the brain near the falx over the middle lobes. The longitudinal sinus, and the veins leading into it, were turgid with dark-coloured fluid blood, particularly at the posterior and depending part. There was a considerable amount of serous effusion in the arachnoid sac. The substance of the brain was healthy, in reference to consistence and colour, but the blood-vessels were full. Each of the lateral ventricles contained about two drachms

of serum. The choroid plexus was unusually dark and vascular. Fully a pound of blood flowed from the head during the inspection. The odour of prussic acid was not felt either from the brain or blood.

On opening the thorax and abdomen, the distinctive odour of the poison was quite perceptible, even to the peculiar acrid sensation it produces on the fauces.

Thorax.—The pericardium contained six drachms of serum, the heart appeared of natural size, but was very firm, and there was great concentric hypertrophy of the left ventricle, so much so, that its walls were in contact; in other respects, this organ was sound; all its cavities were perfectly empty; they were as clean and free of blood as if they had been washed. The aorta and larger arteries were also quite empty and flaccid; the veins were distended with blood, which was unusually dark-coloured and perfectly fluid; we could not find the smallest trace of coagulated blood in any part of the body. Extensive old pleural adhesions existed on left side and at upper part of right side; the substance of lungs was healthy; posteriorly, very much gorged with blood; their colour, when cut into, was a light rose or pink (particularly at the anterior part from which the blood had gravitated), and fluid blood flowed copiously from the cut surfaces.

Abdomen.—The stomach, with its contents, were carefully removed and put into a closed jar; it presented no unusual appearance externally; nor on its mucous surface when examined the following day. The liver was enlarged, hard and mottled, of a grey colour, and by no means loaded with blood. The gall-bladder contained a small stone, and was about half filled with a fluid having more the appearance of venous blood than of bile. The spleen was large, soft, and engorged. The kidneys highly congested. The peritoneal covering of the intestines had a reddish tint. The bladder contained about six ounces of urine.

During the inspection we tried the serum found in the ventricles of the brain, in the pericardium, and some thick fluid which escaped from the œsophagus, with the following test for hydrocyanic acid—it is commonly called the iron test. Slips of bibulous paper, wetted with a solution of potash, were immersed in the respective liquids, then dipped successively in a solution of green sulphate of iron, and diluted hydrochloric acid, but no trace of the Prussian blue colour became visible on any of them.

Some hours after the inspection four ounces of a thick pulpy fluid, which had a distinct odour of hydrocyanic acid, were taken from the cardiac extremity of the stomach, and in the clear fluid obtained from this by filtration, the test by the protosulphate of iron failed in producing the distinctive blue colour.

Ninety hours after death the remaining contents of the stomach, amounting to about fourteen fluid ounces, and consisting of half-digested animal food, bread, and apparently malt liquor, having a

faint odour of prussic acid, were put into a retort, with the addition of some sulphuric acid. The retort was placed on a sand bath, and distilled with a gentle heat for three hours, when two ounces of a clear fluid had collected in the receiver, having a distinct odour of prussic acid, masked however, by the peculiar sour smell of half-digested food.

1. On rendering a portion of the distilled liquid alkaline by potash, the addition of a solution of the protosulphate of iron produced a dirty green precipitate, which by a few drops of hydrochloric acid was changed to a deep Prussian blue colour.

2. To the fluid rendered alkaline by potash, the addition of a solution of the sulphate of copper produced a greenish precipitate which became white on adding a few drops of hydrochloric acid.

3. On a solution of the nitrate of silver being added to the distilled liquid, a copious white precipitate took place. When this was dried and heated in a very narrow reduction tube, it emitted a gas which when ignited at the end of the tube, burned with a rose-coloured flame.

The complete success of these experiments thoroughly established the presence of prussic acid in the stomach. A portion of the distilled liquid was given to Dr J. A. Easton, who has informed me that in his hands they were all equally successful. I beg to express my obligations to Dr Penney for the facilities he afforded us of conducting these experiments in his laboratory.

The following short observations are chiefly intended to point out in what respects the foregoing case accords with or differs from the symptoms and pathological appearances which have generally been observed in persons poisoned by hydrocyanic acid. An accumulation of well authenticated cases would be highly useful and interesting in a scientific point of view, and particularly valuable to the medical jurist.

It was ascertained that the unhappy man had procured half an ounce of prussic acid about fifteen minutes before he called at the tavern. There was no odour of the acid perceptible in the room or about his person within an hour after he took it, which would most likely have been the case had any of it been spilled, so we have every reason to conclude that the whole half ounce was swallowed, the bottle being empty when I found it. Next day I obtained a supply of acid from the same bottle as he had procured it, and submitted it to the method recommended by Dr Christison,¹ for ascertaining the strength of hydrocyanic acid, and the result

¹ "Fifty minims being diluted with distilled water, 390 are added of a solution containing a fortieth of nitrate of silver, and the whole is briskly agitated, upon which the cyanide of silver instantly subsides. As a small quantity of acid should still remain, forty additional minims of the solution will occasion a farther precipitate with the clear supernatant liquid, if the preparation be not too weak; but on again obtaining a clear fluid by agitation and a few seconds of rest, the subsequent addition of the nitrate of silver will no longer have any effect unless the acid be too strong."—*Dispensatory*, page 26.

was exactly what should have taken place with acid prepared according to the Edinburgh Pharmacopœia, which contains 3·3 per cent of anhydrous acid, consequently the subject of the present case in half an ounce had as nearly as possible eight grains of pure acid. With scarcely an exception the dose which is equivalent to a grain has proved fatal. The Parisian epileptics had only two-thirds of a grain each, Sarah Hart scarcely a grain. The rapidity of death does not appear to be always in proportion to the largeness of the dose, but modified by circumstances, such as idiosyncrasy, bodily strength, and the quantity of food in the stomach. There are some grounds even for thinking that beyond a certain dose the effects are not increased, that is to say, a dose far greater than a merely fatal dose does not produce more violent symptoms or speedy death than the exact poisonous dose. The medico-legal question of how long a person after a poisonous dose may have power and consciousness to perform acts of volition and motion, is of the highest importance, as from these acts principally can it be inferred whether death has been the result of suicide or murder. In the recent case of the trial of Belamy for the murder of his wife, the medical opinions were strong that all volition would cease after the scream which has been considered as characteristic of poisoning by this substance. This may be quite correct where a scream does take place, but it is by no means so frequent a symptom as is commonly supposed. It does not appear to have been heard in the case of Sarah Hart; it did not occur in two cases reported by Mr Hicks, (*Med. Gaz.* 1845); nor in a case given by Mr Nunneley, (*Prov. Med. and Surg. Jour.* 1845); neither was it heard in the case I have just narrated, though several individuals were in the adjoining room.

A sufficient number of cases, however, are now on record to prove that after large doses, viz. from two drachms to four ounces of the medicinal acid of different countries, and consequently of a variety of strengths, relevant remarks may be made, and acts of volition and motion deliberately performed. I shall briefly mention three.

A gentleman at Bristol (1843), after swallowing half an ounce (Lon. Phar.) = five grains anhydrous acid, walked about sixty yards, articulated to an acquaintance several words distinctly and relevantly, and did not die for ten or twelve minutes. He gave no scream. A case is reported by Sobernheim of a young gentleman who took four ounces from two vials. He was found dead in bed, the clothes drawn up to his breast, his arms beneath the clothes, and on each side an empty two ounce vial. In Mr Nunneley's case already referred to, a gentleman after taking an ounce appears to have walked or rather ran up a stair, was quite sensible, and spoke rationally for about five minutes, and lived three quarters of an hour. The person I was called to, after drinking the poison from the vial, had the consciousness and power to recork it, and

return it to his pocket, and from the absence of the odour from his mouth, and a small quantity of water having been recently spilled on the floor at his side, it is very probable that he had time to swallow a mouthful of water from the tumbler, and replace it on the table, before he was deprived of the power of voluntary motion.

The important medico-legal bearing of these cases is evident, when I call to remembrance that so lately as 1829, a young man was tried at Leicester for the murder of Judith Buswell by prussic acid, and narrowly escaped being found guilty. She was discovered dead in bed, the bed-clothes were straight and smooth covering her breast, her arms were stretched at her side under the clothes, and an ounce vial corked, with a piece of paper round it, lying at her side. She had taken fully half an ounce. The question came to be, could she after such a quantity recork the bottle, wrap it in paper, and adjust the bed-clothes as described; or would she have perished or become insensible so soon, that those acts must have been performed by another. Four out of five medical witnesses were strongly of opinion that such acts could not have been performed by the deceased, and had the case hinged entirely on medical evidence, the prisoner would undoubtedly have been found guilty, so general was the conviction at that time of the almost instantaneous action of a large dose of this poison.

The post-mortem appearances from hydrocyanic acid are far from being distinctive; there cannot be said to be any morbid lesion which is universally found and characteristic of the cause of death, but a classification and analysis of those which are most frequently observed will afford strong evidence of this poison having been administered, and may aid us in ascertaining the physiological action of the drug.

The characteristic odour must always be attentively sought for, both externally and internally; but it has very rarely been detected in the mouth or from the surface of the body. It is stated by Taylor, that "the body commonly exhales a strong odour of prussic acid when seen soon after death;" but, with all deference, I doubt if this statement is borne out by recorded cases. Mr Champney, who saw Sarah Hart, Tawell's victim, within a few minutes of her death, reports, "I could detect no characteristic odour in the mouth." In the present case, I could not discover it within an hour after death; neither could Dr Easton, who saw the body before two hours had elapsed. Nor do I find it noted as decided in any case where the patient was examined equally early. Internally, however, if the body has not been exposed to the open air or to wet, it is generally easily detected within three or four days, if the dose has been at all considerable, which it usually is, both in suicide and murder. From most authentic reports this odour has been felt on dividing the integuments, in the brain, blood, and every organ of the body; but still it is sometimes altogether wanting. In the

well-known melancholy occurrence of the poisoning of the seven epileptics at the Bicêtre Paris, by this liquid, no odour exhaled from any part of their bodies, though the examinations (which were conducted by MM. Adelon, Marc, and Marjolin) took place twenty-four hours after death. The dose to these patients was equal to two-thirds of a grain of pure acid to each, and they lived from thirty to forty-five minutes. Taylor mentions "that the odour was not perceptible in the body of a youth who had been killed by three and a half drachms of the acid, and whose body was inspected thirty hours after death."¹

But those are certainly exceptions; for in almost every instance the characteristic odour has been detected in the chest, abdomen, or, at all events, in the stomach. In our case it was felt strong in these cavities sixty hours after death.

The placid and life-like appearance of the countenance, and, more particularly, the glistening state of the eyes as in health, have almost universally been observed after death; and though Dr Paris may go too far in considering these "a decisive evidence of poisoning by hydrocyanic acid," still they are well entitled to be ranked among the most characteristic signs. In the above case they were most remarkable, even to the colour of the lips and cheeks. The countenance had nothing of a cadaveric aspect.

Slow putrefaction and a flaccid state of the muscles have been stated to be consequences of death from this poison; but in most cases the very opposite seems to have been observed.

The extreme fluidity of the blood, with the gorged state of the veins and the emptiness of the arteries, is by far the most striking pathological appearance, and has been found in the great majority of cases. In all the seven Parisian epileptics, the great veins were filled with dark, very fluid blood, and the blood throughout the body was fluid without any trace of clots.² In a case reported by Hufeland, it was everywhere fluid, and as much as three pounds escaped from the head during the inspection. In my case, fully a pound flowed from the encephalon, and a corresponding degree of venous engorgement existed in every organ except the liver, which was indurated by previous disease. It is worthy of being noted, that, though no blood came from the veins which were opened in the arm immediately after death, it had oozed copiously from them before the time of the inspection. But this state of the blood is not invariable, for in one or two cases it has been found coagulated in the heart; and Mr George Watt of this city informs me, that in a case which occurred to him, it was thick and grumous throughout the body.

State of the Heart.—The left auricle and ventricle have almost always been found empty, and not unfrequently all the cavities. The hearts of the Paris epileptics were of a firm texture, and did

¹ Manual of Med. Juris., p. 252.

² Annales d'Hyg. Pub., vol. i. p. 510.

not contain a drop of blood. This was the exact state of that organ in the case I have narrated; and in Mr Watt's, to which I have just referred, the heart was quite empty. In Hufeland's case, in one reported by Mr Hicks,¹ in Sarah Hart's, and some others which are on record, the left cavities were empty, and the right filled with fluid blood. While in the recent instance which is given by Mr Nunneley of Leeds, "the heart was completely distended on both sides with dark fluid blood;" and "there was considerable hypertrophy without dilatation of the left ventricle."² This concentric hypertrophy of the left ventricle is not admitted by some distinguished pathologists to be a consequence of disease. Cruveilhier does not believe in it as such. He considers it to be produced by the contractility of the heart existing in full vigour at the moment of death; or, to use his own expression, "when the heart has been surprised by death in all the energy of contractility;" and I have little doubt but such was the direct cause of the hypertrophy in the present case. Cruveilhier always found this appearance in the hearts of those who had been guillotined or had died suddenly from violence; and Dr Budd supports the same view in a paper in the 21st volume of the Medico-Chirurgical Transactions.

Some difference of opinion exists among physiologists in regard to the *modus operandi* of this subtle poison; but the greater weight of authority seems to be, that it acts directly on the nervous system through whatever tissue it is applied. Dr Lonsdale³ experimented very extensively, with the object of determining whether the heart is primarily affected, and comes to the conclusion that the immediate effects are exerted on the brain and spinal cord, and that the contractility of the heart is indirectly enfeebled, apparently according to the dose, or whether the diluted or pure acid be used. If any deductions as to the mode of death can be drawn from the state in which we find the cavities of the heart, the empty state of those cavities (at least of the left) in death from hydrocyanic acid, would lead us to infer that it was the last organ in which vitality existed, and that its contractions up to the moment of death were sufficiently strong to propel all the blood from its cavities.

The pink colour of the lungs has been remarked in other cases. The coats of the stomach or œsophagus do not seem to be much affected by the presence of large doses of prussic acid.

It is entitled to notice, that (as in the case I have given) the ordinary tests have rarely been able to discover prussic acid in the fluid secretions, or even in the contents of the stomach (though the odour of it was quite distinct) till these had been submitted to distillation. The usual tests, which detect a very minute quantity of it in a state of simple dilution, fail to do so when it is combined with organic matter or the animal secretions.

¹ Med. Gaz., vol. i. N. S., p. 460.

² Prov. Med. and Surg. Journ. for 1845, p. 464.

³ Edin. Med. and Surg. Journ., vol. lxi.

The fearful rapidity of the action of prussic acid seldom admits of any remedial means being tried. When the patient has been seen alive, diffusible stimulants have been of service. Of these, the vapour of strong ammonia stands highest. Cold affusion should also be vigorously applied to the chest and upper part of the body; and of late, bleeding from the jugular vein has been recommended.

ARTICLE III.—*Contributions to Pathology and Rational Medicine.*

By JOHN HUGHES BENNETT, M.D., F.R.S.E., Lecturer on the Practice of Physic, and Pathologist to the Royal Infirmary, Edinburgh, &c.

No. 1.—INTRODUCTION.—*How should Medicine be Advanced? with a Few Words in Reply to the Suggestions of Dr Forbes.*

ALL thinking men in the profession are willing to acknowledge that medicine is an imperfect science, and that the art founded upon it is so deficient in positive rules or principles, that an opportunity is afforded for the introduction of a degree of charlatanism unknown in other pursuits. How is this state of matters to be amended? How can we give certainty and precision to that which is vague and conjectural? In other words, how is medicine to be advanced? This last question has lately excited unusual attention, and been answered in various ways. We purpose making a few observations with regard to it, as introductory to a series of articles having that object in view.

We would observe, in the first place, that, from the earliest period in the history of medicine, it has been cultivated by two distinct sects. In ancient times these were called empirics and dogmatists; the former relying on experience alone, the latter conjoining with this reason or theory. There are equally two classes of practitioners in the present day; the one styling themselves practical men, the other pathologists. It is true everybody *professes* to conjoin both reason and experience, but an examination of practice will show that only a few are led by the former, while the great majority are guided by the latter. The proper mode of advancing medicine is differently considered by these sects. The modern empiric or practical man thinks that, an observation of the signs and symptoms of disease having been made, we should next watch the effects of remedies, and immediately apply them for its relief or cure. In his desire to arrive at useful and certain results, he overlooks all the causes and morbid phenomena which precede or accompany the condition he is anxious to remove. Hence has arisen the class of practitioners who are trying new medicines under the idea that practice should be founded on a knowledge of therapeutics. The modern dogmatist or pathologist, however, states, that this is beginning at the wrong end, and that we must

first study the origin and nature of disease before we can hope to apply our remedies. The therapist, he argues, is fighting with disease in the dark; and if some of his drugs hit the right mark, it is by accident, and consequently no real improvement in the art can spring from such a source. Both parties appeal to their works. "What," says the therapist, "is the use of your theory or doctrine if it will not permit me to cure my patients? You did not discover the power of bark in ague, or of sulphur in itch; nor was a knowledge of the valuable properties of opium the result of your inquiries." To this the pathologist replies, "It is true bark cures an ague, but an acquaintance with the laws of periodicity enabled us to point out that it will also cure certain neuralgias and epilepsies. The itch is cured by sulphur ointment certainly, but this may depend on the greasy matter killing the insect on which the disease depends. No doubt opium is a powerful drug; but do you know how to use it? On the other hand, it was not a therapist who tied an artery for the cure of aneurism,—who checked by vaccination the ravages of small-pox,—who discovered the distinct properties of nerves,—or laid down rules for diagnosing diseases of the chest."

Such and similar ideas have caused medicine to be prosecuted by some in one way, by others in another. Unfortunately the two are widely different in their direction. The therapist regards the pathologist as a theorist or visionary who can be of no use in actual practice, while the latter looks upon the power of remedies with scepticism, and denominates the former a routine practitioner. The majority endeavour to unite the investigations of both as far as their knowledge will permit, notwithstanding any particular bias towards one or the other. But in all cases where pathology and reason fail, experience now, as in the infancy of the art, is the only guide. Under these circumstances, should we endeavour to advance medicine by experience or by pathology? Perhaps an observation of what has already occurred may assist us in our efforts at a solution.

We cannot help observing, from the history of the past, that the more positive our diagnosis becomes, the less conjectural is our knowledge. Diagnosis can only be rendered positive by bringing the disease immediately under the cognisance of the senses. No one will doubt the existence of an ulcer of the leg when he sees it; an ulcer of the lungs is not seen, and its presence consequently is conjectural. Still, though not distinguishable by one sense, it is by another; and the ear of the physician teaches him that which sight cannot accomplish. The symptoms of a stone in the bladder can only lead to a suspicion of its existence; the moment a sound is introduced and the stone felt, certainty is produced on our minds by the sense of touch. Leucorrhœa may arise from many causes, but the speculum will enable us to see erosions and ulcers, and to act accordingly. It would be easy to multiply examples, but it is

enough to say, that the invention of instruments in modern times, such as specula, stethoscopes, pleximetres, sounds, microscopes, &c. &c., by enabling us to submit the physical changes in organs to the immediate cognisance of the senses, has permitted exactitude and precision to encroach upon the field of conjecture. The first proposition, then, that we would lay down, is, that medicine can only be advanced by studying the art of diagnosis, and that to this end the practitioner should not be a stethoscopist, a microscopist, an employer of the speculum, or a chemist; but he must be all these united.

But diagnosis consists in the detection of disease. What are we to understand by that term? When we say that a man has stone in the bladder, or fracture of a bone, we talk of facts that everybody understands. When, however, we say that a man has inflammation of the lungs, or apoplexy, we are using terms the very meaning of which is disputed, whilst the nature of the diseases they are supposed to indicate is not understood. Thus we often see a morbid deposit in the lungs,—is it tubercle, or is it chronic pneumonia? A man falls down suddenly comatose, and dies; and afterwards we can find absolutely nothing,—is this apoplexy? What is inflammation—what is tubercle—how can we distinguish with certainty one from the other? These are questions which, we believe, few can answer. It is true, when we see a lung hepatized, we say it is inflamed; when it is infiltrated with a crude or softened yellowish matter, we call it tubercular deposit; but can we always do this, and do we never mistake one for the other? No morbid anatomist can affirm it. If, then, these fundamental points are not determined, how can we distinguish or diagnose pneumonia from phthisis pulmonalis; and if we cannot do this, what meaning are we to attach to the so-called treatment of those disorders?

A knowledge of morbid anatomy and pathology, therefore, is essential to an exact diagnosis. This, again, must be based upon an acquaintance with healthy anatomy and physiology. They bear a necessary relation to each other. In short, pathology is only the physiology of disease. This point is so very obvious that it requires no illustration; and thus we maintain that all hopes of advancing medicine must depend ultimately upon anatomy and physiology, although more immediately upon pathology. How, then, should we advance this latter study?

The proper object of a post-mortem examination is, in far too many instances, entirely overlooked. Practitioners, for the most part, have only in view the cause of death, and not the cause of disease. The two are very distinct inquiries. How frequently do we find medical men only examining the chest, or head, or a particular organ, simply to satisfy their curiosity as to whether their previous opinion be correct. If anything be found that seems to explain the cause of death, they feel satisfied, and there is an end to the investigation. But it must be obvious that this throws no

light upon the origin of the disease or its proper mode of cure. To do this morbid changes must be sought for, not in that advanced stage when they cause death, but at the very earliest period that can be detected. Hence we must follow the lesion into the ultimate tissue of organs, observe the circumstances which produced it, the symptoms and physical signs to which it gives rise, the secondary disorders, and the order of their sequence, their duration and mode of termination. This is pathology.

It may happen that we are endeavouring to cure diseases which, from their very nature, are incurable; or on the other hand, considering affections to be incurable, and not treating them at all, under the idea that they must necessarily be fatal. The curability or incurability of diseases, can only be determined by pathology. Again, many diseases run a certain course. How are we to know these, and how are we to determine whether the natural course of such disorders is in any way influenced by therapeutics? The only means we possess of answering these questions is by pathology.

To pathology and diagnosis, therefore, we look for the means of advancing rational medicine. Let us become acquainted with the nature and *modus operandi* of disease in the first place, and then with the means of detecting it early in the living body, and we shall be prepared to enter upon the subject of therapeutics, or the means of cure.

The next question to be determined is, what degree of pathological knowledge is necessary for practical purposes. We believe that different diseases require different degrees of knowledge: some are more easily detected and treated than others. A man breaks his arm—the diagnosis is determined with precision by means of a manual examination—pathology teaches us that callus is thrown out, which is converted into bone, whereby the broken ends are firmly united—the broken ends are therefore placed together, kept in apposition by means of an appropriate apparatus, and the healing process is left to nature. Such is rational medicine. It consists in first detecting with exactitude the kind of injury; 2dly, knowing the process of cure; and 3dly, in directing the treatment, so as to bring this about in the shortest period of time. It may be said, therefore, that we possess sufficient knowledge for the treatment of simple fracture. In a case of necrosis, however, farther knowledge is necessary. The question here arises, not that new bone is formed, but on what tissue does its formation depend, in order that any operative proceeding may not interfere with the process of nature. This is a subject still disputed, and consequently the treatment of necrosis is surrounded with greater difficulties than that of simple fracture.

Now there are many diseases, concerning which we cannot complete that circle of reasoning we are enabled to accomplish in the case of a simple fracture. Thus we are frequently enabled to detect tubercular ulceration in the lung with tolerable certainty, but do

we know the natural process of cure? We can often detect a pneumonia, and we see it gradually disappear; are we certain that bleeding or tartar emetic are the best means of assisting nature? To these questions the answers at present can only be doubtful. Again, there are several diseases which we are even unable to detect with certainty; for instance, abdominal tumours, and diseases of the nervous centres. In such cases medicine is still more conjectural than in pneumonia or phthisis pulmonalis.

The legitimate mode, then, of advancing practical medicine appears to be an endeavour to extend to those subjects which are destitute of certainty in diagnosis and pathology, the same exactitude that characterises our knowledge of a simple fracture. This is not to be done by the discovery of a supposed specific for this or that disorder. History proves that the specifics of one age are not the specifics of another, whilst it as certainly shows that what is positive in diagnosis and pathology constitutes the only true advance both in the art and science of medicine. Neither is it possible in the present state of our knowledge to advance medicine by what is called the numerical method—and for the same reasons. Statistical inquiries essentially depend upon diagnosis and pathology, and if our acquaintance with these is not precise, what confidence can be placed in adding together under one name, what may ultimately prove to be widely different disorders.

Morbid anatomy as first practised by Bonnet, Morgagni, and Lieutaud, and subsequently by Baillie, Andral, Cruveilhier, and Carswell, has undoubtedly done much for medicine, by furthering, in the manner spoken of, diagnosis and pathology. On some diseases, however, it has thrown no light, and we now extend our researches by means of the microscope and organic chemistry, as is done by Gluge, Henle, Vogel, and Lebert. We can already see diagnosis and pathology still further advanced, and are thereby satisfied that this is labour in the right direction. For instance, we can now discover spermatozoa in the urine, which indicate a disease that could not otherwise be detected; we see parasitic fungi growing on the skin, constituting a peculiar class of eruptions; we can detect in the milk of a nurse both its poverty and the presence of matters, rendering it unhealthy; and we can determine malignant from benign tumours. True, we might have *suspected* these affections from general symptoms, in the same manner that our forefathers suspected pneumonia and phthisis pulmonalis, but now we *demonstrate* them; our knowledge is exact, and not conjectural. Again, we find in the brain an unnatural softening; is it dependent on exudation, or post-mortem changes? This the microscope only can determine. We see a quantity of matter deposited—is it what is called cancer, lymph, or tubercle? This can only be decided by similar means. In this field much has already been accomplished, although a great deal remains for us to do. Organic chemistry unfortunately is still in its infancy, and its

application to pathology, therefore, is as yet very limited. We can perceive, however, efforts in all directions to extend inquiries into this subject, and are inclined to think that, owing to the introduction of physiologico-pathological researches into the clinical investigation of disease, a new era in the history of medicine is gradually opening upon us.

In making the foregoing observations, we cannot pretend to any novel views. On the contrary, we have taught them publicly for the last five years, and are satisfied that they express the sentiments of a large section of the profession, who are laboriously working in the direction now indicated as the right one. We may be permitted, therefore, to express our regret that a gentleman so highly esteemed as Dr Forbes has published opinions, which we think can only tend to lower unnecessarily the dignity and present position of the cultivators of medicine in the eyes of the public. No doubt his motives for doing so were of the best kind, but from the manner in which his views are stated they must necessarily be misunderstood. Extracts from the *British and Foreign Review* have appeared in the public prints of this city (Edinburgh), from whence it has been endeavoured to be shown, on the authority of Dr Forbes, that medicine, as generally practised, is in such a deplorable state, that it is better to have recourse to the most empirical therapeutic system of the day, although that system has been denominated by himself as "false and bad—useless to the sufferer, and degrading to the physician." This and many other passages must acquit that gentleman from the charge of favouring charlatanism, although it is only too evident that the scope and tendency of his observations are of a kind to degrade medicine both as a science and as an art. We believe that this is uncalled for, and undeserved: that Dr Forbes has exaggerated the evil and suppressed the good, and that in meriting the compliments of the avowed enemies to rational medicine, he has made a false step, which he should seek to recover as soon as possible.

An attentive perusal of the observations of Dr Forbes on this subject has led us to the conclusion, that he does not sufficiently appreciate what is doing by the true cultivators of medicine. This we can readily understand, because his ideas, though referring to the future, are drawn from the past. He forgets those men who are laboriously working in dead-houses, in hospitals, and in laboratories, endeavouring to discover the origin and progress of disease, in the ultimate tissues and composition of the body. Neither does he seem to remember any of the results which the researches of the physiologico-pathological school have brought to light. Throughout the whole twenty suggestions for the improvement of medicine with which his article concludes, we cannot discover the slightest hint concerning the necessity of advancing anatomy and physiology, of diagnosis and pathology, or of organic chemistry. Neglecting

the root and soil, he seems, for the purpose of amendment, to place confidence only in pruning the branches, or removing the excrescences which deface them. On this account we think that Dr Forbes is wrong, in supposing that the regeneration of medicine is to begin. We confidently assert that it has already made considerable progress, although he may not have observed it. To him theory and practice may be most unsatisfactory; we can already see much of sound doctrine and of rational treatment. Viewed in the position in which he stands, medicine appears as a stagnant lake, completely covered with scum and rubbish. Those who regard it from a more favourable position, see that the accumulations on its surface are already broken up, and detect in it an under current, which is slowly but effectively communicating to the pool a hitherto unknown degree of clearness and purity.

With this disclaimer to the opinions of Dr Forbes we must here pause. Did our space permit, it would be easy to show that most of the means he has recommended for improving the state of medicine, have already been tried and found useless, or must necessarily be the results rather than the causes of that state. In our opinion, it is not to be brought about by watching the natural progress of disorders, by the numerical method,¹ or by proving medicines, but by cultivating a knowledge of pathology and diagnosis on the foundations of anatomy and physiology. We will venture to predict, that these are the grounds on which "Young Physick" will take its stand, and we are happy to recognise in Dr Laycock one who holds similar views.

But it is not by speculation that we can hope to advance any

¹ On the subject of the numerical method we are anxious to avoid misconception. We do not deny the utility of statistics in cases where positive data exist, we are only anxious to restrict their application. They may be employed, for instance, in such a case as simple fracture, where the hour of the accident can be determined, and the time of consolidation tolerably well ascertained. Again, the appearance or disappearance of an eruption, and faithful records of morbid appearances, by an accomplished pathologist, such as M. Louis, will admit of the numerical method. So also as regards the duration of parturition, counting from a certain stage in the process, the weight or length of the infant, and indeed wherever data equally positive can be obtained. But when the discussion turns upon pneumonia, phthisis pulmonalis, rheumatism, &c., &c., the question resolves itself into—1st, one of diagnosis, and the skilfulness of the physician; and, 2d, into another of pathology, or what is understood by these affections. We hope that we shall not offend any pure stethoscopist in asserting, that the present state of medicine, if it does not actually forbid him to arrive at any positive conclusion, presents so many difficulties, as to render us very sceptical as to the result. To render these statistics useful, the data or the diagnosis must be positive. On the other hand, it is the confidence placed by Dr Forbes in this method, even when wrongly applied, that obliges him to put faith in the cases of empirics, who, from time immemorial, have rested their claims, not upon a knowledge of disease, but upon the number of their cures. We have no such confidence in these persons, and consequently refuse their evidence. If, however, any empiric can cause the transformation and absorption of lymph in pleurisy, sooner than a rational practitioner, perhaps he can do the same in simple fracture. If nature is to be controlled or assisted in one case, why not in the other? We shall be happy to receive any evidence on this point, derived from instances where the diagnosis has been previously determined by a dextrous surgeon.

science or art. We propose, therefore, to give our feeble assistance to the work, and to put on record, in the pages of this journal, the results of numerous investigations into the minute structure and pathology of diseased tissues, trusting that they will, sooner or later, prove an acceptable contribution to the progress of rational medicine.

In conclusion, we have also a few suggestions to offer, which, if adopted, we think might be useful in furthering the cause we advocate. They are,—

1. To encourage the idea among the profession which considers him to be the truly practical man who exercises a sound reason and judgment in the practice of medicine and surgery, based rather upon a knowledge of anatomy and physiology—morbid anatomy and pathology—than upon mere experience.

2. To encourage the habitual use of specula, stethoscopes, pleximeters, sounds, microscopes, and every instrument capable of bringing the products of disease under the immediate cognisance of the senses, and thus rendering diagnosis exact.

3. To encourage the study of pathological anatomy on rational grounds, that is, by examining *all* the organs in every case—investigating into the minute structure of every morbid product—and by obtaining a chemical analysis of these, and of the blood, whenever this is practicable.

4. To place in all hospitals connected with medical schools an officer well acquainted with morbid anatomy, and the modern means of cultivating it, whose duty it shall be to conduct the post-mortem examinations, keep a minute record of each, teach morbid anatomy to the students, and publish a yearly report.

5. That in our public institutions, the history of disease should not be recorded by young men, inexperienced in observation, but should, in all cases, be dictated by the physician and surgeon.

6. To extend and give greater importance to clinical instruction, by introducing the system of bed-side tuition, so advantageously practised in continental universities; and by taking care that those who teach, are enabled to communicate to their pupils the manual dexterity, and knowledge in the use of all those instruments, essential to an exact diagnosis.

- 7, and lastly; To impress upon the legislature the necessity of introducing some system which will ensure the appointment to our public hospitals of well educated physicians and surgeons, intimately acquainted with pathology and the principles of rational medicine. Otherwise it cannot be reasonably anticipated that the extensive opportunities for observation, which these institutions afford, will ever be made available in advancing the healing art, for the good of the community at large.

ARTICLE IV.—*Case of Primary Cancerous Infiltration and Ulceration of the Lungs, with Remarks.* By JOSEPH BELL, Member of the Faculty of Physicians and Surgeons of Glasgow, Lecturer on Botany, Andersonian University, Glasgow.

(Read at the meeting of the Glasgow Medical Society, April 21, 1846.)

THOUGH carcinomatous affections of the lungs, especially the different varieties of the encephaloid species, are of tolerably frequent occurrence, yet primary scirrhus infiltration, either in a solid or ulcerated condition, has been very seldom found.

Among fifty-eight cases of pulmonary carcinoma, collected from various sources by Dr Walshe, only nine were of a scirrhus character, and five of a scirrho-encephaloid. Then, again, there have been only a very few cases published in which ulceration existed. So far as I am aware, excavations of a cancerous nature have only been observed by Boyle, Lobstein, Perier, Taylor, Stokes, MacLaughlin, Greene, and Hughes.

In the majority of these instances the disease was of the encephaloid species.

In consequence, therefore, of the rareness of the morbid condition in question, I have taken the liberty of bringing the following case under the notice of the members of this society to-night.¹

September 25, 1845.—A. Mc——r, æt. about 30 years, a married man, rather below ordinary stature; black hair and eyes; sallow complexion; face plump; eyes prominent; body not much emaciated. Complains of severe cough; pain at stomach, centre of sternum, and over heart; vomiting, and difficulty of breathing; voice weak, having a kind of stridulous sound; tongue much furred, chapped, and dry; respiratory movements short and rapid; pulse 86; feels weaker at right wrist, but there is neither irregularity nor intermission; cough very troublesome, especially at night, preventing sleep. He expectorates an abundant quantity of greenish coloured purulent-looking, somewhat fetid sputa. Vomits all his food, which he states becomes arrested about lower part of sternum, causing him much pain until he vomits; unable to lie down in bed at night from difficulty of breathing, he cannot even recline for a short time on left side; he generally lies or rather leans on back.

Examination of Chest.—There is considerable retraction of whole of left side, except at cardiac region, which bulges out very considerably, to the extent of three inches in every direction. This side of chest is much more emaciated than the right. The intercostal spaces very distinctly marked, being much deepened, and the ribs prominent. Motions of expansion and elevation very imperfect. On applying the hand to the anterior surface of this side, no vocal fremitus is felt—on the posterior aspect, only perceptible over centre

of scapula. PERCUSSION elicits a perfectly dull sound over whole of left lung anteriorly, except at clavicular regions, where, though much below a normal standard, yet it is not so dull as elsewhere; posteriorly the sound is likewise intensely dull, except over middle of scapula, where it is of a healthy clearness; dulness extends over whole of sternum—resistance of walls well marked. Over *right* lung percussion yields a sound of the clearness that is usually elicited in a healthy condition of the pulmonary organs, except at clavicular regions, where it is rather duller. Neither over these regions, nor above the mammary, is the vocal fremitus distinct. AUSCULTATION—*Anterior aspect of left side.*—No vesicular murmur audible at any part. Over clavicular, infra-clavicular and axillary regions, abundant, loud, moist, mucous and cavernous rales are heard; over mammary and infra-mammary regions there is a sort of bronchial wheezing sound, combined with a considerable amount of cavernous ronchus; along margin of sternum slight friction sounds are heard. *Posterior aspect.*—The only respiratory murmur heard is at centre of scapula, where it is of a strong puerile character; over other parts, loud mucous, and bronchial rales very audible; at supra-scapular region an imperfect pectoriloquy is heard, and also a slight friction sound.

RIGHT SIDE OF CHEST—*Anterior aspect.*—Over the upper part of this side, viz. from clavicle to mamma, little or no vesicular murmur audible, but sounds indicating the presence of emphysema very distinct—abundant harsh, moist, mucous rales heard. At the infra-mammary region vesicular murmur superseded by loud puerility, which is also very audible over the whole of POSTERIOR aspect of chest, except at supra-scapular region, at which a cavernous ronchus is heard, as is also bronchophony.

Pressure over epigastrium and left hypochondrium gives rise to a considerable amount of pain, and over latter region percussion yields a dull sound. Skin dry, harsh, and scurfy—he never perspires. Bowels said to be regular at present, but are usually costive. Urine said to be voided in regular quantities. Has never had hæmoptysis—none of his relatives have died consumptive.

Complaints of about three years' duration. At first he was attacked with pain about centre of sternum of a sharp darting character, and shooting across chest in every direction; frequent fits of coughing and vomiting soon took place. The pain shortly became fixed over cardiac region and epigastric, as well as at middle of sternum; he had also dyspnœa and dysphagia. These complaints have persisted with very slight intermission since commencement; shortly after which he was bled, had a blister applied to chest, and took some medicine with temporary relief. His sufferings, however, have continued gradually to increase in spite of an immense variety of treatment, consisting of local bleeding, counter-irritation, and cough mixtures. From these means he thinks that he has experienced transient benefit. He finds his complaints much ag-

gravated in summer and in damp weather. Such was the condition in which I found the patient.

To avoid being tiresome, instead of quoting the notes which were taken at subsequent visits, I will merely give a summary of the more important of the changes which the symptoms underwent during the progress of the case. Shortly after my first visit the pains became much mitigated; his appetite improved; the vomiting and dysphagia ceased. About the end of November, the pains returned; cough and difficulty of breathing became aggravated; face more puffy; cutaneous veins of neck more distended; wrists and ankles became œdematous. Early in January he began to lose strength rapidly; cough and dyspnoea increased in intensity; he was unable to assume the recumbent position; he sat in bed supported by pillows, with slight inclination to right side. The expectoration was most profuse, and of a greenish hue. The œdema both of upper and lower extremities gradually increased, and extended to scrotum and abdominal walls, all these parts becoming excessively distended. He had frequent attacks of diarrhœa, the dejections often contained large quantities of unmixed florid blood. He had no fever; the pulse was seldom above 80; no perspiration; voice was latterly reduced to a mere whisper; he had great disinclination to speak. The changes which took place in the physical signs may be summed up in a few words. The retraction of left side of chest increased to a slight extent, and was observed at infra-clavicular region of right. The rales became both louder and more extensive over whole chest, and respiratory murmur less audible over right lung, being superseded by the sounds of emphysema and the various rales mentioned. The sound, on percussion, underwent little or no change from that which was noted at the first examination of the patient. He died at nine o'clock on the evening of 16th March.

Sect. Cadav., 18th March, 8 o'clock A.M.—The body appeared much emaciated. Chest:—on opening this cavity profuse emphysema at anterior mediastinum was perceived, along with an abundant deposit of coagulated lymph; this also covered the upper part of left lung, which was very much collapsed. Numerous firm adhesions to walls of chest at upper lobe. The lower one greatly collapsed, and lying in some clear serum; the two lobes much separated from each other by a wide fissure, the upper one along its sternal margin adhered most firmly to mediastinum, from which it could only be separated by the knife. On removing the lung this lobe felt as dense and unyielding as a solid piece of wood, so that it was thought to be the seat of a hard, firm tumour. On making a section into its substance, it was found to be completely excavated by one large cavity, the walls of which had a scirrhus appearance, being of a pearly white colour, striated, and of a cartilaginous hardness; at superior part these walls were a quarter of an inch in thickness, very tough, and yielded drops of milky fluid when pressed.

The interior of excavation was most irregular; it terminated in three sinuses, one of which admitted the end of index finger; there was no lining membrane, indeed the whole interior seemed as if it had been scooped out by a sharp-edged instrument. On removing the dirty greenish matter that adhered to the walls, these hollowings out appeared as if eaten away by the teeth of some small animal. Besides this cavity, the remaining part of lobe was found infiltrated with numerous hard spherical bodies, varying in size from that of a coriander seed to that of a chestnut. On making a section of these bodies, some of them were found to be of a uniform cartilaginous consistence, of a bluish white colour, striated; others had their centres softened; some, again, were found to be excavated in precisely the same manner as the large cavity, and containing the same kind of dirty green matter; their walls being hard, of a glistening pearly colour, the knife rasping as it made its way through them. One of the largest of these excavations, and which was placed at the apex of the lobe, had its walls nearly half an inch thick, and of a pearly white hue, with reddish streaks. Several of the tumours adjoining this one were of deep melanotic colour, of an uniform cartilaginous consistence, varying in size from that a pea to that of a hazel-nut; the surface of a section of these bodies presented a beautiful black striated appearance. Again, some of the other tumours, when cut into, were found to be of a greenish-yellow, or bluish-yellow hue, resembling very much the sarcocarp of an unripe pear, both in colour and consistence. On the superior edge of lower lobe, two or three small yellowish projections of a nipple-like shape were observed below the pleura (one as large as a small hazel-nut); these contained a thin, pale, yellowish, purulent looking matter, and had no hardened walls. In this part of the lung several somewhat tubercular looking masses existed, of various sizes, from that of a pea to a garden bean; their contents were of a cheesy consistence (in some instances could be easily pressed out by squeezing). This matter was of a dingy buff colour in some of these bodies; in others of a greenish yellow, or the pear-like appearance, and felt soft and granular. Their walls, however, in every instance, were of a pearly colour and gristly hardness. Along with these deposits other tumours were intermixed, of an uniform cartilaginous consistence throughout their whole extent, a few being of a pearly-white hue, some of dusky yellow, and others having the greenish, pear-looking tinge. Few traces of pulmonary structure were seen in upper, or yet the superior portion of lower, lobe; it seemed as if completely obliterated by the foreign deposit.

The right lung was neither collapsed, had any effused lymph, nor adhesions on its surface. On removing it from chest, the upper lobe felt hard and dense; a closer examination found it to be completely infiltrated by hardened spherical tumours of various sizes, from that of a pea to that of a large orange. The largest one of

these was found to be excavated in the same irregular scooped manner as the cavity at superior part of left lung. This excavation terminated in sinuses, which ran along base of lobe. The walls of cavity were of very considerable thickness at the upper part, and of a pearly-white colour; they gradually became thinner towards the apex; their interior aspect was similar to that which we observed on left side—about a teaspoonful of dirty greenish fluid was contained within this cavity. On making a section of the other hardened masses, many of them were found in a state of greater or lesser excavation,¹ their solid remains having the same pearly aspect as the walls of the one just described. Some of them were of an uniform greenish-yellow colour, and firm consistence; others had a softish central cheesy granular substance, which could be pressed out by the fingers, leaving a pearly cartilaginous cyst behind; but, in numerous instances, none of the contents could be squeezed out, the whole mass being of an uniform hard consistence. A few, again, had small ulcerated apertures in their substance.

A great number both of these solid and excavated tumours adhered firmly to the pulmonary pleura, which presented, at some of the points of contact, white pearly coloured streaks. Between the adhesions the pleura was distended with air, the serous membrane being completely separated from the pulmonary tissue, which had in many places nearly disappeared, there being only a dark black jelly-like substance remaining between the various foreign deposits. The air was effused most extensively beneath pleura, the finger being pressed on one place, caused the air to rush into and distend another.

Through middle lobe there were scattered a large number of the same abnormal deposits; some of them had their contents softened, and a few were ulcerated. A large quantity of air was also effused below the pleura covering this lobe, but the pulmonary substance was not so much destroyed, especially at lower part of lobe, at which a few hard black bodies existed, about the size of coriander seeds, the scalpel rasping as it made its way through them. The lower lobe was also much infiltrated with these small black bodies, and very emphysematous. Around lower part of trachea five or six round tumours were found, about the size of hazel-nuts: they were of a hard consistence; two of them were melanotic, and the rest, when cut, presented an appearance similar to a section of the sarcocarp of an unripe pear: they were perfectly cartilaginous, and presented a strong contrast to the normal bronchial glands in their vicinity.

There was nothing abnormal detected in the condition, either of

¹ One very striking peculiarity of these cavities was, that previous to cutting them open, judging from the dense and firm sensation which they yielded when pressed between the fingers, they appeared as if they had been perfectly solid tumours; this arose from the firmness of the texture composing their walls, or more properly speaking, their *non-ulcerated* remains.

stomach, œsophagus, or liver. The heart was of a small size: the spleen was much enlarged, and of a very firm consistence. The examination was permitted to be carried no further.

(To be continued.)

ARTICLE V.—*Observations regarding the Influence of Galvanism upon the Action of the Uterus during Labour.* By J. Y. SIMPSON, M.D., F.R.S.E., Professor of Midwifery in the University of Edinburgh, &c. &c.

It has been repeatedly proposed and attempted to induce and increase the parturient contractions of the uterus, by the application of galvanism to the organ.

In 1803, Herder appears to have first suggested the employment of galvanism for this purpose, in cases of slow and tedious labour, in which the contractile action of the uterus offered to become insufficient and defective.¹

Dr F. Ramsbotham of London, when treating of “lingering labour,” in the excellent Lectures upon Midwifery, which he published in the Medical Gazette in 1834, &c.² observes,—“I am inclined to think that electrical shocks—particularly derived from the galvanic battery—would excite the flagging powers of the uterus under labour, and perhaps even induce action *ab initio*. This is a means, however, of which I would not, in the present state of our knowledge, recommend a trial; and I only judge by analogy, in consideration of the influence the electrical fluid exerts over the nervous system generally, and, through that system, over muscular fibre.”

Some obstetric authorities are inclined to attribute no small portion of the good results derived from the use of the forceps in lingering labours, to the irritating effect of the instrument upon the contractile power of the uterus. They believe, that in addition to its action as a simple mechanical power or agent, the introduction and irritation of the instrument exerts a dynamical effect upon the uterus, by stimulating the organ to renewed and increased contractile efforts. Professors Stein and Kilian have in a particular manner supported this view; and, some years ago, Kilian constructed forceps, with the blades made of different metals, in order

¹ See his *Diagnostische Praktische Beiträge zur Erweiterung der Geburtshülfe*: Leipzig 1803; and *Meissner*, *Art des Accouchemens*, au 19me Siècle, p. 175; *Velpeau* *Traité de l'Art des Accouchemens*, tom. ii. p. 62.

² Medical Gazette for 19th April 1834. See also the same opinion expressed by Dr Ramsbotham in the same words, in the two editions of his well-known work on “The Principles and Practice of Obstetric Medicine and Surgery,” p. 176 of second edit. 1844.

that the dynamical action of the instrument might be rendered greater and more equable, by being of a galvanic nature. In 1839, he published¹ the first case in which he employed this galvanic forceps. The labour had been progressing slowly from insufficient uterine action, and for two hours and a half the head of the child had scarcely, if at all, moved. The forceps were introduced; and, as soon as the blades were joined, the uterus appeared to the operator to contract with more power and energy, but still the contractions themselves were quite inadequate, without extractive force, to promote the expulsion of the infant.—In the last edition of his learned work on Operative Midwifery, Kilian candidly states, in regard to his galvanic forceps, “After having now (1845) repeatedly employed them, the results have fallen short of my expectations, probably in consequence of the insufficient power of the instrument. I will, however (he adds), at some subsequent time attempt to ascertain, in a more complete manner, the influence of a strong galvanic stream upon the uterine structure, and perhaps I will then be enabled to offer something more precise regarding this subject.”²

A case, in which galvanism was employed, in order to induce premature labour, was published in Germany³ in 1844, by Drs Hœninger and Jacobi. The os uteri was opened up by a sponge tent, and ergot of rye exhibited, before the galvanism was applied.

In the Provincial Medical and Surgical Journal of the same year,⁴ Dr Radford of Manchester, published a lecture “on galvanism applied to the treatment of uterine hemorrhage.” He proposed, by the aid of galvanism, to induce a state of tonic contraction of the uterus, in “extreme cases of exhaustion from hemorrhage.”—He further ingeniously suggested the use of the same agent “in hour-glass contraction, and other forms of irregular uterine action;” “in tedious labour, depending upon want of power in the uterus;” “in cases where it may be considered necessary to induce premature labour;” and “in certain cases of menorrhagia in the ungravid state.” Dr Radford, at the same time, stated that he had practically ascertained its action. “Galvanism,” he observes, “produces an effective and powerful contraction of the uterus; and not only so as regards its tonic contraction, but it has also the power of energetically exciting alternate contraction when applied at intervals. I can (he adds) tell you most seriously, and most solemnly, that it produces these two important changes upon the uterus, in such a degree, as in my previous reflections on the subject I had no conception of. The alternate contraction excited by this agent is analogous to, and as powerful as, that which is observed in normal labour, and the tonic contraction is greater.”—(P. 605.)

¹ Medicinische Zeitung des Vereins für Heilkunde in Preussen, No. xii., 1839. Forbes' British and Foreign Review, vol. viii. (1839), p. 566.

² Operationslehre für Geburtshelfer, Hft. 4, 1845, p. 516.

³ Neue Zeitschrift für Geburtskunde. Bd. XVI. Hft. 3. p. 424.

⁴ Provincial Medical and Surgical Journal for December 24, 1844.

The publication of Dr Radford's observations had the effect of strongly calling the attention of the profession in this country to the subject; and several cases, intended to show the probable influence of galvanism upon the parturient action of the uterus, have latterly been published in different Medical Journals.

In conducting physiological or therapeutical experiments upon the *living* economy, where so many disturbing and deranging influences are ever present to perplex and embarrass our results, all are ready to acknowledge the extreme uncertainty which we generally encounter in attempting to trace a true chain of sequence and causation between applied agencies and their apparent or expected results. The difficulty of distinguishing between the *post* and the *proper hoc* in such inquiries is assuredly as great in regard to experiments upon the uterus, as in regard to similar observations upon any other organ of the body. In some instances, and especially where the process of parturition is lingering, the contractile efforts of the uterus occasionally diminish in power, or even altogether cease, and again more or less suddenly or gradually recommence, without our being able to trace out any appreciable cause—mental, vital, or physical—of a nature sufficient in any way to account for the variations which the labour-pains seem to undergo. Besides, the uterus, particularly during labour, is well known to be very readily, and sometimes very powerfully, influenced in its parturient action, by mere states and emotions of the mind alone; and through the medium of the excito-motory system of nerves, the simple application of cold, and other forms of chemical and physical irritation to the surfaces of the abdomen, vagina, cervix uteri, &c., is frequently and strongly capable of stimulating and increasing the contractile functions of this organ. In attempting, therefore, to ascertain the exact influence of galvanism itself upon the uterus during parturition, these and other sources of fallacy in such an investigation must be necessarily, as far as possible, guarded against. With this view, I sometime ago planned and instituted a series of experiments, the results of which I now propose to state.

The experiments were begun for the purpose of ascertaining, as far as possible, the exact degree of influence which galvanism possessed over the contractile action of the uterus during labour, and consequently the amount of aid which we might expect to derive from this power, in any case in which we had recourse to its assistance. I did not in the first instance doubt (as I was afterwards led to do by the results of the experiments) the actual oxytotoxic influence of galvanism. I believed in its actual existence, and was merely anxious to ascertain and fix its actual amount.

A little consideration will readily show, that any agent capable of increasing the parturient action of the uterus may produce that result in one of three ways. *First*, It may increase the *force* or

intensity of the pains, without increasing their duration or frequency; *secondly*, It may increase the *duration* of the pains, without increasing their intensity or frequency; and, *thirdly*, It may increase the *number* or *frequency* of the pains that occur within a given period, without increasing either the intensity or the duration of the individual pains themselves.

We have evidently little or no power of measuring the existing amount of uterine action by any observations upon the supposed mere intensity of individual pains. The sufferings of the patient, as marking this intensity, would, no one can doubt, prove a most inadequate and fallacious guide in such an inquiry as the present. But we have the power of measuring, with the stop-watch, the *number* of pains that recur within a given time, and the actual *duration* of each pain as it occurs; and these two criteria certainly afford us ample and sufficient means for ascertaining and determining the actual amount of parturient action that may exist within any prescribed period.

In the experiments which I have to detail, we measured the amount of parturient action that was present at different limited periods,—*first*, by the *length* or *duration* of the individual uterine contractions or pains; and, *secondly*, by the *number* or *frequency* with which they recurred within these periods.

But an explanation of the different data contained within the four different columns, into which the results of the experiments are thrown in the subsequent tables of cases, will illustrate the mode of procedure that was adopted, and its objects, much better than any more lengthened comment.

The *first column* shows the duration of the pains, and the length of the intervals between each, or, in other words, the frequency with which they recurred, for some time before either the galvanism, or the apparatus for it, was put in requisition. Hence this column displays in each case the duration and frequency of the pains, whilst they were still in no respect interfered with by the experimental arrangements subsequently adopted.

The *second column* marks, in a similar way, the duration of the pains, and of the intervals between them for some time after the galvanic apparatus was arranged about the patient, but before any galvanic current was passed through the wires. This method was pursued in order to avoid any mental or physical influence which the arrangement of the apparatus might possibly have upon the patient. Some minutes were generally required in thus adjusting and applying the machine and wires.

The *third column* denotes the duration of the pains, and the length of the intervals between (or their frequency), after the galvanic circle was completed, and the galvanic current thus allowed to pass through the patient.

The *fourth column* presents, on a similar plan, the length of the

pains and intervals, for a limited period after the galvanic circle was entirely broken.

In applying the galvanism in the succeeding cases, the galvanic current was generally used of as great a strength as the patient could possibly be induced to bear. In some of the experiments an electro-magnetic coil machine, made by Messrs Abraham and Dancer of Manchester, and recommended by Dr Radford, was employed; in others we used a similar apparatus of a simpler construction, and of equal if not greater power, that has long been manufactured for physiological and medical purposes by the Messrs Kemp of Edinburgh.¹ With either instrument it was easy to excite a stronger galvanic current than the arms of the most determined person could bear for any length of time, when the extremities of the conducting wires were taken hold of by the two hands. In all the experiments, we employed the "vaginal conductor" devised by Dr Radford, consisting of a strong brass stem, seven inches long, and covered with a non-conducting material up to near its uterine extremity. And the directions which, in the lecture previously cited, Dr Radford has laid down for the employment of the galvanism, were strictly adhered to.²

The subjects of the first six succeeding cases were intern patients of the Edinburgh Royal Maternity Hospital. The observations upon them, contained in the appended tables, were all noted and collected by Dr Martin Barry, who was at the time acting as House Surgeon to the Hospital. And in thus mentioning Dr Barry's name, I am sure that I offer a sufficient guarantee to my professional brethren as to the scrupulous accuracy and conscientious fidelity with which the experiments were conducted, and every item in the results of them carefully noted. They were witnessed by various pupils and others.

CASE I.—Ann M'Pherson, æt. 20; first pregnancy. Labour came on about the seventh month, and the child was born in a putrid state; the head presented in the first position. The length of the first stage was 9 hours; the second stage only occupied 6 minutes. The labour began on the 6th April 1845, at 8 o'clock A.M.; she was delivered at 5½ P.M. The galvanism was used during the first stage. The following observations were begun at 11·13' A.M., and were finished at 1·47' P.M.:—

¹ See a description of this instrument given by Mr Kemp in the Monthly Journal of Medical Science for November 1845.

² "When the remedy is applied, the brass ball of the vaginal conductor is to be passed up to the os uteri, and moved about at intervals on to various parts of this organ. At the same time, the other conductor must be applied to the abdominal parietes over the fundus uteri. Shocks may be also passed transversely through the uterus by simultaneously applying the conductor on each side of the belly."—Dr Radford's Lecture, p. 608.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.
30	30	40	80	45	75	45	165
33	267	38	22	40	170	37	368
31	209	40	50	35	145	45	300
33	147	38	172	30	120	40	95
35	205	45	135	45	195	30	105
30	150	40	140	32	163	25	95
35	325	35	205	30	195	28	182
35	175	50	190	33	117	35	145
32		42		40		28	
Avr. 33	188	41	124	37	147	56	125

CASE II.—Jane Young, æt. 22 ; second pregnancy ; was delivered of a living child on the 12th May 1845. The head presented. The labour was very tedious : the first stage lasting $53\frac{1}{2}$ hours, and the second 20 minutes. The observations contained in the table below were made during the first stage, being commenced at 7.49' of the 11th, and terminating at 41 minutes past 10 that morning. The labour began about 11 P.M. of the 9th, and she was delivered on the 12th at $4\frac{1}{2}$ A.M.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.
70	305	40	170	30	90	40	230
60	255	40	215	33	162	43	227
60	210	38	112	30	105	35	205
45	135	39	171	33	87	37	263
40	170	40	200	31	59	37	188
45	180	42	258	34	71	36	219
40	140	41	244	35	25	36	204
45	150	39	201	30	150	37	263
50		37		34		38	
Avr. 51	193	40	196	32	94	38	225

CASE III.—Isabella Bowman, æt. 25 ; first pregnancy ; temperament excessively nervous ; was delivered of a living child on the 11th August 1845. The head presented, but the labour was very tedious. The first stage was protracted to 51 hours ; the second stage was nearly 3 hours in length. The galvanic experiments were made during the first stage. Labour began at 12 A.M.

of the 9th; she was delivered at 7 A.M. on the 11th. The succeeding series of observations were commenced at 9:31' P.M. on the 10th, and were terminated at 8 minutes past 11.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.
60	210	35	55	37	83	60	150
65	205	35	85	40	380	20	160
30	210	23	7	33	207	36	234
68	202	40	260	40	140	75	225
40	140	50	190	40	140	60	300
60	120	30	180	35	25	70	230
58	62	60	240	30	210	47	193
30	90	43	197	70	230	60	60
55		73		60		37	
Avr. 51	155	43	152	43	177	52	194

CASE IV.—Mary Macdonald, æt. 18; first (?) pregnancy; was delivered on the 28th August 1845 of a premature child, which only gasped a few times after birth. The length of the first stage was $8\frac{1}{2}$ hours; that of the second only three minutes. Labour began about 4 o'clock A.M., and was completed about half-past 12 P.M. The galvanism was employed during the first stage. The observations were begun at 7:40' A.M., and completed at 9:54'. The patient was not nervous in the slightest degree. The galvanism caused a continuous tremor. Breaking the connexion of the wires produced starts, and nothing more; reforming the connexion had the same effect. It ought perhaps to be observed, that in this, as in the other hospital cases, I have altered the tables in one point—and in one point only—from the mode in which they stand in Dr Barry's manuscript copies of them. I have omitted, and that merely for the sake of their abridgement and perspicuity, the exact date in minutes and seconds, which Dr Barry carefully gives in all the observations of the commencement of each individual pain.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.
50	115	25	175	45	90	45	45
40	145	58	42	50	85	40	65
65	65	45	90	52	98	55	50
45	75	44	81	59	31	62	98
63	42	59	71	35	70	61	79
64	41	54	111	57	48	60	105
76	74	38	97	52	78	52	83
52	53	35	85	*118	83	62	18
52		53		80	62	50	
				62	90		
				47	38		
Avr. 56	76	46	94	55	70	54	68

In this case the galvanic circle was, immediately afterwards, a second time completed and broken with the following results :—

Connected Wires re-applied.		Wires again removed.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.
55	70	62	63
57	138	56	109
62	18	60	30
45	53	49	101
55	35	65	55
58		62	
Average 55	63	59	72

CASE V.—Mrs Ross, æt. 23; first pregnancy; lymphatic temperament; was delivered of a living child, born at the full time, head presenting, on the 20th November 1845. The first stage was $23\frac{1}{2}$ hours long; the second stage was completed in 35 minutes. Labour commenced at 11 A.M. of the 19th, and terminated at 11:35' A.M. of the 20th. The galvanism was used in the first stage. The following observations were begun at 6:9' A.M. At that time the os uteri was dilated to the size of a sixpence. It was about the size of a shilling when the observations were completed, at 8:53' A.M.

* "Probably two pains, with incomplete cessation of the first."—M. BARRY.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.		Seconds.	Seconds.
65	205	60	210	65		70	110
70	80	70	65			65	160
40	80	50	205	After 23 minutes, during which there was no pain, the wires were removed, when, in the course of a minute and a quarter the contractions returned according to the rate noted in the next column.		70	125
65	175	65	70			85	125
68	232	55	215			70	200
70	110	70	95			75	120
*105	135	70	155			55	140
80	130	80	220			80	235
65		80	100			70	
		55	185				
		75	105				
		70	65				
		55	80				
		75	255				
		80	70				
		65	70				
		40	20				
		65					
Aver. 63	143	66	129			71	152

CASE VI.—Catherine Riley, æt. 24. Temperament sanguineous; was delivered on the 23d October of a living child, at the full time, the head presenting. The labour began about 11 o'clock P.M. of the 21st, and terminated at 2 A.M. on the 23d. The following observations were commenced at 47 minutes past 8 o'clock P.M. on the 22d, and terminated that evening at 10²³'.

Before Application of Wires.		Wires applied, but Galvanic Circle left Incomplete.		Wires applied, and Galvanic Circle Completed.		After Removal of Wires.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Seconds.
75	15	80	10	60	45	66	69
35	55	45	90	95	100	*185	85
45	60	75	105	90	15	78	57
95	85	95	10	*225	45	90	90
85	20	60	90	80	25	105	15
90	30	85	170	55	80	85	50
95	55	75	15	80	85	70	50
85	65	65	130	74	106	80	55
*160		170		63		75	
Avr. 77	48	75	77	82	63	83	59

* "Probably two pains, with incomplete cessation between them."—M. BARRY.

At the commencement of the preceding observations in this case, the os uteri was about the size of a crown piece; it became fully dilated, and, consequently, the first stage was terminated by 10 o'clock, before the observations were completed.

In all the six preceding cases the labour was more or less lingering and protracted. Such cases were selected because it was only in them that adequate time could be obtained for making the required series of careful and uninterrupted observations. For the same reasons, the continuance of the first stage was chosen as the proper time for conducting the investigation, the changes in the second stage, or at least in the latter part of it, being generally too rapid and great to allow of accuracy in such an inquiry. The results would doubtlessly have been more satisfactory if the trials and observations had been more extensive. But we met with no small difficulty in extending the inquiry among the hospital patients, even to the length that we have done. In a number of other instances a similar series of observations was begun, but sooner or later interrupted by various circumstances,—more particularly by objections on the part of the patient, in consequence of the disagreeable pain and suffering which they underwent from the passage of the galvanic current through their bodies, without that current directly exciting increased uterine contractions.¹

The data contained in the preceding tables prove that, in the circumstances under which the observations were made, neither does the duration of the pain always go on progressively increasing, nor does the duration of the interval go on progressively decreasing with the continuance of the labour, as some obstetric authorities have alleged.

Further, neither the frequency of the pains, nor their duration, appeared to be affected in any appreciable or direct manner by the employment of the galvanism. An examination of the mean or average results obtained in each case, during the four different periods indicated by the four different columns, will afford us evidence of the justice of this last remark. To accomplish more readily this analysis, I shall collect into a tabular form the mean or average results under each period in four of the cases (*viz.* the 1st, 3d, 4th, and 6th cases). I shall immediately allude to the exceptional data afforded by the other two cases, the 2d and 5th.

¹ Indeed, if it were proved that the galvanism had a direct and useful oxytocic effect, I believe it would be found no easy task to get patients to submit to the action of so formidable and painful a measure,—not to speak of the niceties required in managing the machine, in setting it and keeping it in proper action—and the difficulty of being able at all times to have such an apparatus speedily and at once within our reach when its services were necessary, as in sudden hemorrhages.

General Mean Results of Observations upon the Contractile Action of the Uterus in Four of the preceding Cases, during the four stated Periods.

Cases.	Before Application of Wires.		Wires applied, but Galvanic Circle not Completed.		Wires applied, and Galvanic Circle Complete.		After Removal of Wires.	
	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.
No. I.	Seconds. 33	Seconds. 188	Seconds. 41	Seconds. 124	Seconds. 37	Seconds. 147	Seconds. 35	Seconds. 182
No. III.	51	155	43	152	43	177	52	194
No. IV.	56	76	46	94	55	70	54	68
No. VI.	77	48	75	77	82	63	83	59
Avr. of whole. }	54	117	50	112	54	114	56	125

The analysis of the individual cases contained in the preceding table affords the following results, in regard to the periods at which in them, the pains were (1) most frequent in their recurrence, and (2) longest in their duration.

1. *Frequency of the Pains.*—In two cases (1st and 3d), the interval between the pains was least, and the pains themselves were consequently most frequent, during the second period in the observations, namely, when the apparatus was simply applied, and before the galvanism was used. In case 4th, they were most frequent during the period following that in which the galvanic action was put in force; and in case 6th they were most frequent during the first period, or previously to either the apparatus being arranged or the galvanism applied.

2. *Duration of the Pains.*—In one case (1st), the pains were longest during the second period, when the apparatus was applied without the galvanism; in another (4th), they were longest in the first period, or before any experimental applications were tried; and in two others (3d and 6th), they were of the greatest length during the period subsequent to the removal of the galvanism.

The last column in the above table shows that, on the whole, the length of the pains and of the intervals was changed and modified in only a slight degree, in these four cases, by the arrangements and applications adopted during the four periods. But in not one of these four cases were the pains either most frequent in their recurrence, or longest in their duration, during the period of the employment of the galvanism, and whilst the galvanic current was passing through the uterus.

The two remaining cases (the 2d and 5th), were, as I have

already stated, somewhat exceptional, and that in two opposite directions.

In case 2d, during the period that the galvanism was applied, the pains were less in their duration than at any other of the three periods—but the intervals between them were also less ; or, though shorter in length under the galvanic action, they were more frequent in their recurrence.

In case 5th, the result was different from what it was in any of the other six instances—for, as I have already stated, subsequently to the completion of the galvanic circle, only one pain occurred, and then uterine action *entirely disappeared* during the twenty-three minutes that the galvanic current continued to be passed through the body of the patient. The result was rendered only the more remarkable by the fact, that the uterine contractions and pains were regular before the galvanism was applied, and again became regular as soon as the galvanic influence was removed.

In some of the cases above detailed, the labour was of a very protracted nature, and consequently presented so far exactly one of those conditions in which, as suggested by Herder, and by Drs Ramsbotham and Radford, the galvanism would probably be useful in strengthening and increasing the pains. We have seen this result unfulfilled. Last year in two cases of very lingering and difficult labour occurring, the one in consultation, and the other in my own private practice, I took a further opportunity of attempting to increase the defective action of the uterus by the influence of the electro-magnetic apparatus,¹ and in both instances as signally failed in producing any beneficial effect. I shall state one or two particulars regarding them.

CASE VII.—This case proved so protracted, after the os uteri was fully opened, and at last such local and general symptoms supervened, as to force me to use instruments for the delivery of the patient. Some time previously I carefully applied, for upwards of an hour, the action of galvanism in the mode already described, but without making the infant's head descend, or increasing either the length or the frequency of the pains. I watched the result with a stop-watch in my hand—contrasting, as in the above tables, the duration of the pains and intervals before, during, and after, the application of the galvanism. And I employed the galvanic current as strong as the patient could be made to endure it. In fact, the skin of the abdomen became at last quite red and erythematic under the irritation of the external conductor.

CASE VIII.—The subject of this second case of protracted labour was deformed, and came from a distance to Edinburgh, in

¹ Throughout these remarks I have spoken of the power employed as Galvanism, and in doing so, have conformed to general and conventional usage. Speaking in strict technical language, it ought to be more properly, I believe, designated Electro-magnetism.

order to be confined under my care. The pelvis was very narrow at the brim, and when the child's head was at last expelled, it was found much compressed and flattened. The labour was extremely tedious, the intervals between the pains being long. The membranes had been ruptured for some hours, and the os uteri was well dilated when the galvanism was applied at 2 P.M., on the 10th August. At this time the pains were steady, and made the patient complain considerably, but they appeared to have no effect in forcing down the child's head. She had not slept during the previous night, but she was by no means weak or exhausted, and she had taken some nourishment. Her pulse was quiet, and the parts were soft and cool. My assistant, Dr Keith, carefully noted the duration of the pains and intervals for a period before the apparatus was employed—their length and frequency after the apparatus was arranged, but the galvanic circle not completed—and the effects after the galvanic current began to pass through the patient. The results are stated in the following table:—

Before Application of Wires.		Wires applied, but Galvanic Circle not Completed.		Wires applied, and Galvanic Circle Completed.	
Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Intervals.	Duration of Pains.	Duration of Seconds.
Seconds.	Seconds.	Seconds.	Seconds.	Seconds.	Intervals.
90	390	75	390	90	390
60	330	90	420	75	360
90	360	*	300	100	420
150	300	120	300	80	
60	420	60	420	Pains subsequently ceased.	
75					
Average 87	340	86	366	86	390

* This pain was slight, and short.

The patient was not at all alarmed, but seemed rather to be amused with the operation of the galvanism. After the last pain of 80 seconds, noted in the table, there was no appearance of uterine contraction for 13 minutes, when one almost imperceptible pain occurred. The galvanism was continued for some minutes longer, but *no uterine action reappeared*; and from this time till the evening only three slight sensations of pains were felt. As the patient had long wanted sleep, and the passages were perfectly free from irritation, an opiate was then given. She slept well during the night. Uterine contractions, however, did not again occur till the afternoon, or till 24 hours after the use of the galvanism, when they again came on gradually, and increased in severity till the child was born. When born the heart of the child was pulsating, but all efforts were ineffectual in establishing respiration. Its head (as I have already stated) was much compressed; and on opening it we found clots of blood effused both at the base

and into the ventricles of the brain. The mother made a speedy recovery.

The *general results* obtained from the employment of galvanism, in the eight cases which I have detailed, may be summarily stated as follows :—

In one instance (Case 2), the pains were more frequent in their recurrence, but shorter in their duration during the application of the galvanism. In five other cases (Cases 1, 3, 4, 6, and 7), the employment of the galvanism neither increased the average frequency of the pains, nor their average duration. In one (Case 5), the pains ceased whilst the galvanism was applied, and returned upon its removal. In the instance which I have last detailed (Case 8), the uterine action ceased while the galvanism was applied, and did not return upon the withdrawal of the galvanic action, nor for 24 hours subsequently. There was no reason whatever at the time to expect this as a probable occurrence, independently of the galvanism. But even admitting, for the sake of argument, that the cessation of the uterine action was not the result of the galvanic influence used, still the fact is amply sufficient to show that the galvanic current had not, at least, the power either of increasing the pains, or even of continuing and maintaining them when they offered to fail. It may be proper to add, that during the galvanic action, in none of the experiments did Dr Barry or I find, in the intervals between the *clonic* uterine contractions or pains, any evidence whatever of unusual *tonic* contraction of the uterus, as shown either by any degree of hardness in the general uterine tumor, or by any degree of tension in the pressure of the bag of membranes or the child's head against the cervix uteri.

It would be hasty and logically incorrect to deduce from the preceding observations, that under no modification, and under no manner of application does galvanism possess the power of directly exciting or increasing the contractile action of the uterus. Forms or methods of employing it may yet possibly be detected or devised, affording a different result. But I believe I am justified in inferring from the preceding inquiry, that as employed at the present time, and in its present mode, it is not a means which can be in any degree relied upon for the purpose in question; and is so far practically and entirely useless as a stimulant to the parturient action of the uterus.

In stating the above conclusions as the result of my own experience, I, of course, by no means wish to impugn, in any way, the validity of the observations made in one or two isolated cases by others, and in which an opposite effect was supposed to be obtained under the employment of galvanism during labour. Uterine contraction may certainly have become occasionally increased while the galvanism was being used, but I strongly question if that increase was the result of the galvanic agency. I have already

hinted, towards the commencement of this communication, how much and readily the existing degree of uterine action may be occasionally modified by the state of the patient's mind, or by other still more unappreciable conditions, and how greatly it is in some cases influenced and excited by the application of cold to the surface of the abdomen, or of mere mechanical irritants to the mucous surfaces of the vagina and cervix uteri. The use of so portentous an apparatus as the electro-galvanic machine, may certainly sometimes influence the uterus through the mind of the patient, by raising feelings of hope and confidence in the results; or the application, to the skin of the abdomen, of the wet sponge attached to the external conducting wire, may excite uterine contraction by reflex action, upon the same principle as cold thus used very generally leads to this effect, both during labour and after delivery. The mere galvanic irritation of the skin or muscles of the abdominal parietes may possibly produce the same result, without the uterus being itself directly influenced by this agency. Or, lastly, and principally, the mere introduction and mechanical irritation of the "vaginal conductor" upon the surface of the vagina and cervix uteri will, I doubt not, occasionally excite more strong and powerful uterine pains, in the same way, and upon the same principle, as the mechanical irritation of the fingers or of the lever or forceps certainly sometimes produces the same consequence. I have already alluded to Stein as attributing much of the good which may be derived from the forceps to their simple dynamical or irritating effect upon the uterine contractions.¹ He has thus shown, according to Kilian, that through the mere *dynamical* influence of the instrument, altogether independently of its mechanical action, "sometimes the irregular character of the pains is reduced to regularity—sometimes when exhausted the activity of the uterus is reinforced—and sometimes when normal its power becomes greatly increased."² Some years ago, the late Professor Lobstein of Strasburg, illustrated this dynamical effect of the forceps by the following case:—"Being one day (says he) upon the point of terminating a labour by the forceps, where its application was indicated by a prolapsus of the chord, scarcely had I introduced the two branches of the instrument, when the contractions, which had already ceased, reappeared with a new force, and drove the head through the cavity, and outlet of the pelvis, with such rapidity, that I had not time to disengage the blades, &c. I attribute (he adds) to this irritation exercised by an instrument upon the uterus a great part of that astonishing success which the partisans of the lever have obtained."³ Long before this, Baudelocque expressed the same opinion

¹ "On the Action of the Forceps," in the *Gemeins: Zeitschrift für Geburtskunde*, vol. iv. p. 374.

² *Operationslehre für Geburtshelfer*, p. 514.

³ *Compte de la Salle des Accouchées, &c.*, 1804 à 1814, p. 17.

with regard to the success of Hiberniaux with the lever. "I am fully persuaded (he observes) that the lever has very little share in it, and that in his hands it is nothing more than a means of irritating the uterus and exciting it to contract with more energy, as we sometimes irritate it with the end of the finger conveyed under the edge of the orifice, and the hand placed on the belly."¹

It is almost unnecessary to point out how apposite these remarks are to the introduction and employment of the long vaginal conductor—as one possible and probable source of fallacy in any observations made, without due caution, respecting the supposed influence of galvanism upon the parturient action of the uterus.

I have already stated that the results at which I have arrived in the preceding inquiry, are quite the reverse of those which I expected to obtain when I commenced the investigation. One reason which specially and principally led me to believe that I would find the uterus quite susceptible of galvanic influence, was the knowledge of the long ascertained and acknowledged fact, that all voluntary, and some involuntary muscles, were readily capable of being forced into contraction through its agency. But this *argument from analogy* did not, as we have seen, prove good in point of fact—and is probably not even correct in point of theory. Last autumn, when mentioning the results of some of the preceding experiments to Dr Sharpey of London, that gentleman directed my attention to a paper published by Jordan,² upon the structure and action of the dartos in the male. The dartos, like the uterus, presents under the microscope a structure somewhat different from the ordinary tissue of involuntary muscles, though not exactly similar to each other. Like the uterus, the dartos contracts under the application of cold, and of different mental states, and other stimuli,³ and, like the uterus also, its contractions seem incapable of being excited by the agency of galvanism. Jordan submitted it experimentally to the action of a galvanic battery of sixty-five pairs of plates, without producing any effect whatever upon its contractility.

As a concluding remark, I would beg to take the liberty of suggesting, that perhaps the plan of investigation which I pursued in the present inquiry is one that might be usefully and successfully employed to test the validity, or fix the value, of other supposed oxytoxic measures besides galvanism.

¹ Heath's Translation of Baudelocque, vol. ii. p. 431.

² Meckel's Archives für Physiologie, bd. i. (1834), p. 410.

³ "The dartos (remarks Cruveilhier) possesses the property of active contractility, as is seen in the contraction of the scrotum, and the vermicular motions observed in persons exposed to cold, or under the influence of great dread, or of the venereal orgasm, and also in the much more evident contraction of the scrotum after an irritating injection has been thrown into the cavity of the tunica vaginalis."—Cruveilhier's Anatomy, by Madden, p. 596.

Part Second.

REVIEWS.

Physiologie Pathologique: ou, Recherches Cliniques, Expérimentales, et Microscopiques sur l'Inflammation, la Tuberculisation, les Tumeurs, &c. Par H. LEBERT, M.D., &c. Paris: J. B. Baillière. 1845.

Pathological Physiology: or, Clinical, Experimental, and Microscopical Researches, on Inflammation, Tuberculization, Tumours, &c. By H. Lebert, M.D., &c. Paris: J. B. Baillière. 1845.

IF there be three subjects in pathology which, on account of their practical importance, deserve greater attention than others, they are undoubtedly those of inflammation, tuberculization, and the various kinds of tumour. The work of M. Lebert contains complete treatises on these, both general and special. It is entirely the result of his own researches in morbid anatomy, prosecuted with the assistance of the microscope, and contains numerous cases, enforcing, and indeed convincing, us, of the advantages which pathology so cultivated must offer in the practice of medicine and surgery.

The author informs us, that on commencing the study of medicine, he was struck with the inferiority of the method that was followed in the exposition of facts and pathological doctrines. Instead of finding exactitude, and the almost mathematical precision which governs the differential character in the existences of organic nature, he was convinced that medicine was rather a science of tradition, in which the dominant schools caused themselves to be made of value, at the expense of observation. Up to the present time, it has continued to be the *art* of cure, and has not yet been elevated to the rank of the *science* of cure. In order to arrive at precise notions, he early felt the necessity of conjoining, in addition to chemical researches, three other modes of investigation, viz. clinical study, experiments on animals, and microscopic observation. To make the microscope a speciality would be dangerous, and would indicate an exclusive and unphilosophic mind. But it is capable of rendering the greatest assistance to pathology, the true basis of which must always be clinical observation. It is to a work executed in this spirit, planned upwards of ten years previous to its publication, consisting of two octavo volumes, and illustrated by an atlas containing 22 plates and upwards of 260 figures, that we now beg to call the attention of our readers. Consisting, as it does, of so many original observations and cases, it can only be properly

appreciated by an attentive perusal. It will be our endeavour, notwithstanding, to convey a general idea of its contents.

INFLAMMATION.

The early phenomena of inflammation are well described from observations made on the web of the frog's foot. The author correctly remarks, that such observations on reptiles should only be adopted when they confirm those made on the inflamed capillaries in the different tissues and organs of the human body. He confirms the statements of previous inquirers, when they say that the acceleration of the circulation, and narrowing of the capillaries, is the first change produced, that this is followed by enlargement of the vessels and a retarded flow of blood, terminating in complete stoppage or stasis.

On the subject of the formation of new vessels, he describes a series of observations which he made on those of the embryo of the reptile and fowl. It is difficult to make similar researches on man, but he thinks it probable that new vessels are produced in him in a similar manner. He opposes the theory which considers their formation independent of the circulation, as well as that which attributes them to globules of blood having escaped and channelled a passage in the surrounding parenchyma. His observations induce him to think that they are caused either by the dilatation of existing vessels, which were previously too small to admit the corpuscles of the blood, or by new capillary arcs, which are formed by the impulsion of the blood against the walls of the vessels, at first causing them to dilate in certain spots, and then gradually elongating the pouches so produced.

After a time the liquor sanguinis is exuded from the obstructed capillaries in a fluid state. Should blood be extravasated, it is owing to rupture of some vessel, as the globules cannot pass through its walls intact. These minute hemorrhages cause the blood to be extravasated into the tissues, or thrown upon the surface of inflamed parts. The globules may, by dissolving, furnish the materials for various kinds of effusions, but are never directly transformed into any other kind of corpuscle. If the inflammation have not been very intense, the fluid exuded is slightly turbid and reddish, and peculiar granular bodies soon form in it.¹ A minute description of these is given, with their measurements, as found in various tissues and organs. These granular corpuscles are found in the red hepatization of the lungs, in the inflamed brain and spinal cord, in pyogenic membranes surrounding abscesses; they constitute the principal element of the granulations of Bright, and may be found in numerous tissues and morbid products. The author has, on one occasion, succeeded in producing them in the frog, by exciting inflammation of the peritoneum, an important fact, proving that they are formed from

¹ These are the exudation corpuscles of Gerber, Bennett, and others.

the liquor sanguinis, and not from the blood globules, as Gluge supposed.

Dr Lebert confirms the accounts previously given of the structure of false membrane on serous surfaces, and describes it as being composed of fibrinous filaments and corpuscles. The latter, from their resemblance to pus, he denominates *pyoid*.¹ False membranes gradually change into a true fibrous tissue, but, according to the author, not by means of cellular development, but rather by the condensation of the exuded matter. Sometimes they become very vascular, and are transformed into pyogenic membranes, which continue to secrete pus. At others they undergo what has been called the osseous transformation. A microscopic examination, however, proves that such mineral collections have no analogy to the structure of bone. Occasionally an inflammatory exudation is transformed into a gelatinous, yellowish, and semi-transparent substance, composed of a hyaline substance, several fibres, granules and granular corpuscles. This the author denominates the *colloid tissue of exudation*. It has been described as colloid cancer, but, in his opinion, it is only a complication, and not a distinct species of cancer, or other anormal product.

Dr Lebert gives an excellent description of pus, and more especially of the mode of distinguishing it from other morbid products. He considers the pyoid to be a variety of pus corpuscle, and has frequently found them mingled together. Fat is frequently to be met with in pus, 1st, in the form of granular molecules, composed of elaine and stearine; 2d, as globules of oil, varying in size; and, 3d, as rhomboidal plates of cholesteriné. Not unfrequently, also, we find with pus granular corpuscles, crystals of earthy salts, and vibriones of various kinds.

The following examples are given as specimens of the practical results occasionally to be derived from a microscopic examination of pus:—1st, An examination of the soft flocculent masses frequently found in the pus of an abscess will enable us to determine whether the disease be tubercular or phlegmonous. 2dly, In an abscess of the mamma, we can discover by the microscope whether milk and pus be mingled together. There are also found the globules of the colostrum, which his observations have led him to conclude are the granular corpuscles of inflammation. 3dly, In cancerous ulcers of the breast, he has several times found the corpuscles of cancer mingled with those of pus. 4thly, Pus corpuscles may often thus be seen in the urine, and from the kind of epithelium mixed with them, we can even determine whether they come from the bladder or kidney. The epithelium scale from the former is much larger than that from the latter. 5thly, He has frequently been able to decide, by a microscopic observation, whether the matter of chronic

¹ These are the exudation corpuscles of Valentin, and plastic corpuscles of Bennett.

abscesses is connected with caries, from the presence of small portions of bone. *6thly*, In examining pus from the bronchi, he has been led to the conclusion that the more the mucous and epithelial elements predominate over pus, the less is the danger. When the contrary occurs, the inflammation is very intense. *7thly*, In dysentery the existence of pus is one of the earliest changes in the alvine evacuations. When the elements of bile are observed, a convalescence may be prognosed, and they may be detected by the microscope, long before they are visible to the naked eye. *8thly*, In certain diseases of the skin, a microscopic examination of the crusts is the only certain mode of detecting the pustular from other forms of eruption, especially *tinea favosa*. *9thly*, The microscope does not exhibit any difference between the pus corpuscles of gonorrhoea, of syphilis, and of other kinds of purulent matter. *10thly*, When the pus is sanious, or of bad quality, we find the corpuscles more or less deformed and broken down into granules.

The author confirms the opinions of several histologists, when he states that there is no such things as mucous globules. When perfectly healthy mucus is examined, there may be seen either young epithelial cells, or large scales of pavement epithelium. These have frequently been described as a new element, under the name of *mucous globules*. More frequently, however, these so-called mucous globules, are nothing but pus corpuscles, and the distinctions which have been described as existing between them, such as their being larger or smaller, the presence or absence of a nucleus, &c., must necessarily be contradictory, as they are altogether imaginative. Catarrh is an inflammation of the mucous membranes, terminating in the formation of pus. When pus, as in the case of panaris, occurs among fibrous tissues containing many nerves, it gives rise to the most severe and prolonged pain. When found on the free surface of mucous membranes, however, it escapes readily and causes little disturbance. But the corpuscles of pus, in both affections, are identically the same, and hence the various distinctions described to exist between them have neither practical nor pathological value.

A knowledge of the forms of epithelial cells, at different portions of the mucous surface, is capable of being made useful in diagnosis. Thus the author has several times seen patients, and even their medical attendants, very uneasy concerning an habitual expectoration, tinged with blood. A microscopic examination has shown him that the sputum throughout was composed of mucus from the mouth, and the cylindric epithelium of the posterior parts of the mouth. He was thus enabled to assure the patient that the disease was chronic pharyngitis, with an abundant secretion from the amygdalæ.

The author now describes the healing process of granulating sores and cicatrization. In the matter exuded on sores we frequently find corpuscles passing, in various stages of development,

into fusiform cells and even perfect fibres. These constitute an organised tissue, which he denominates the *fibro-plastic tissue*. The fibro-plastic globules are found in many chronic inflammations, hypertrophies, different tumours, and many tissues. They constitute the principal element of the accidental deposition found on the synovial membrane, in white swelling of the joints, and form the basis of many tumours, which have been mistaken for encephaloid, and which have been radically cured by excision. They also compose the substance of the vegetations often seen on the conjunctiva after the operation of strabismus, and are the principal element of certain chronic ulcers, and especially of the red fungous growths which surround external fistulæ.

The following is the author's description of the process of cicatrization :—

“There is at first a formation of new vascular networks, which take their origin from vessels nearest to the injured surface. A liquid blastema transudes from these new vessels, one part of which is transformed into pus composed of serum and globules, whilst the other undergoes a fibrinous coagulation, which unites together the vascular loops, and fills up their interstices. At the commencement it contains many pus globules, which, as the reparative process proceeds pass into a diffuent granular state. The blastema then assumes the form and consistence of a stratiform fibrous tissue, very like that observed in the formation and disappearance of false membranes. In proportion as this organisation of the intervascular substance approaches the fibrous state, the vessels become more rare, and, for the most part, are obliterated; perhaps the fibrinous substance, on passing into the fibrous state by condensation, causes the disappearance of a part of these vessels by compression. Later, the vessels entirely disappear, and the substance described then becomes altogether fibrous, and being no longer vascular, it becomes atrophied and reduced to its minimum volume. Hence may be explained two phenomena,—the first of which is the contraction often so injurious in large ulcers, and the second is the facility with which the nodular tissue, badly nourished, undergoes, and the difficulty experienced in obtaining the cure of these ulcers. When the vascular network of the fleshy granulations, especially if the loss of substance be not considerable, arrives at the surface, and establishes a communication with the capillary plexus which habitually secretes the epidermis, cicatrization becomes complete, on account of the tender and delicate tissue being covered with an imbricated covering of the dense and protective epidermis.”—P. 83.

Sometimes cicatrization is carried on beneath a crust, composed of inspissated fibrinous matter and pus mixed with epidermic scales. When the reparative process is complete, the crust is detached.

The author terminates his description of the general pathology of inflammation by giving an account of ulceration and mortification. These processes he considers to be analogous. They are caused by obliteration of the vessels, and the absence of that nutritive exudation necessary for the formation of a blastema.

Under the head of treatment, Dr Lebert defends the employment of blood-letting against those who maintain its uselessness in many inflammations. He practises in a mountainous country (at Lavey, Canton de Vaud, Switzerland), where, from the distance of a medical man, many people are abandoned to the simple efforts of nature.

Pneumonias and pleurisies are frequent; and he has observed that, when properly treated at the commencement, the individuals affected are not exposed to relapse in subsequent years. In those cases, on the other hand, which have been left to nature, the patient frequently recovers promptly and completely, but the mortality is much greater among such persons, as they are peculiarly disposed to relapses. He has known individuals free from tubercle have three or four pleurisies in the course of a few years.

The alkalies and neutral salts have the valuable property of dissolving fibrine, and are, on this account, of the utmost service in the treatment of inflammations. He particularizes especially bicarbonate of soda, nitrate of potass, and the muriate of ammonia. The latter, though little used in France, enters into the routine of English practice as a dissolvant and expectorant. We observe nothing new in this section on treatment, with the exception that the action of these remedies is shown to have a connexion with the physiological phenomena of inflammation. It is pointed out that, although generally employed on the most empirical grounds, the benefit derived is capable of being rationally explained by a practitioner acquainted with the pathology of the disease.

The author now enters into the special consideration of inflammation in the different organs and tissues of the body. Each subject constitutes a complete treatise in itself, founded on many original observations, and illustrated by numerous cases. We regret, however, that the necessary limits of our analysis forbid us to enter upon this portion of the work

TUBERCULIZATION.

Dr Lebert commences the consideration of this subject by stating it to be a general law, that whatever is really and materially different in pathology exhibits this distinction in ultimate structure by a microscopic examination. Every observation of morbid products he has made tends to confirm this law, and to show that one or more matters which often appear the same to naked sight may, by a minute investigation, be proved to be widely different.

The constant elements of tubercle are—*1st*, a large quantity of perfectly round granular molecules, varying from $\cdot 0012$ to $\cdot 0025$ of a millimetre in diameter; *2dly*, an interglobular or hyaline substance; and *3dly*, corpuscles proper to tubercle. These last vary in size from the $\cdot 005$ to $\cdot 01$ of a millimetre in diameter. Their form is irregular and angular, with the angles rounded; their borders are generally very evident. They contain in their interior a certain number of molecular granules, but no nuclei. Water, ether, and feeble acids scarcely produce any change in them; the concentrated acids, as well as liquid ammonia, and a concentrated solution of caustic potash, dissolve them. The dimensions of these corpuscles vary, but such variation is independent of the organs in which they

are found. As regards their nature, he considers them to be undeveloped cells.

In many cases it is difficult to say whether the morbid product under examination be tubercle or cancer, and several are alluded to in which they were mistaken for each other. The diagnostic characters of tubercle ought therefore to be known. Pus corpuscles are a fourth or a third larger than those of tubercle; they have a spherical form, and a granular raspberry-like surface. They contain from one to three nuclei; they are also free, whereas those of tubercle are closely glued together. The corpuscles of cancer, on the other hand, are four times larger than those of tubercle, and sometimes even still larger.

When tubercle softens, the interglobular substance liquifies, the corpuscles become disintegrated and rounded, and may, by the absorption of liquid, appear more voluminous. This is not a proof of growth, but, on the contrary, a commencement of decomposition. The pus which surrounds tubercle never originates from tubercle itself, but always from neighbouring parts. Even when this deposit, to the naked eye, cannot be distinguished from pus, we may always determine its distinctive characters by the microscope. When transformed into cretaceous matter, tubercle presents irregular amorphous mineral masses, often mixed with crystals of cholesterine and pigmentary matters. Observation proves more and more that this is one of the modes in which nature performs a cure. It would seem that, under these circumstances, one portion of the tubercle is absorbed, whilst the remainder may exist for a long time without being changed.

The following elements are sometimes met with in tubercle: *1st*, melanosis, which frequently accompanies tuberculization of the lungs, the bronchial ganglions, and of the peritoneum; *2dly*, fat; *3dly*, fibres; *4thly*, large globules of a brownish-green; *5thly*, crystals which have the form of ammoniaco-magnesian phosphate. Not unfrequently other elements are observed, which are purely accidental, and have frequently been mistaken for those of tubercle, viz. the results of exudation, of suppuration, and various forms of epithelium.

Thus Dr Lebert regards as constant elements of tubercle, granules, intercellular substance, and corpuscles proper to it. After secretion, tubercle at first takes a compact form, afterwards it softens, and later becomes diffuent, or it shrivels up and becomes cretaceous. We may regard, as a first stage of the development of tubercle corpuscles, their close aggregation, their agglutination, and the persistence of their irregular angular contours—in a word, their crude condition. Their disaggregation and swelling constitute the second stage—that of softening. The third is that of deliquescence; the molecules of the corpuscles separate themselves; the latter lose their individuality, and form a semi-liquid granular mass. Pus and other products of inflammation, when mingled with tubercle, always

arise from morbid changes in the surrounding parts. Dr Lebert concludes his general description of tubercle with an account of its chemical analysis, as given by various writers. He then enters upon its special pathology, into a consideration of which, notwithstanding the great interest of the subject, we are prevented from entering by want of space.

TUMOURS.

Dr Lebert arranges tumours in two classes. One of these containing those elements which are found in a normal state of the organism; the other is composed of such as are altogether new. The first he denominates *homœomorphous*, the last *heteromorphous tumours*.

The homœomorphous tumours are as numerous in kind as the natural tissues of the body. They are thus divided: 1. Epithelial and epidermic; 2. Encysted of cryptous origin; 3. Cellular encysted; 4. Fibrinous; 5. Erectile; 6. Fatty; 7. Melanosis and melanic; 8. Fibro-plastic or sarcomatous; 9. Fibrous; 10. Hypertrophy of the mammary gland; 11. Colloid tissue; 12. Cartilaginous; and 13. Osseous. The author considers each of these separately.

1. *Epithelial and Epidermic Tumours*.—Before we can properly understand the nature of these formations, it is necessary to be well acquainted with the structure of the epithelium and epidermis. The author gives, therefore, in the first place, a short descriptive sketch of this subject after Henle. Epithelial tumours are composed of membranous plates of pavement epithelium in close juxtaposition, the nuclei of which are in general easily distinguished. Sometimes they are only slightly vascular, at others, vessels are very numerous, and are the cause of sanguineous infiltration from small capillary extravasations. There are also found fibrous elements, although in small quantity, and principally under the form of fibro-plastic or fusiform cells. These tumours may be surrounded by a membrane, or this may be absent. The latter is the case in staphyloma of the eye, which consists of an hypertrophy of the epithelium.

Epidermic tumours are entirely composed of epidermic scales, more or less dense. They assume many varieties: 1st, Corns and callosities exhibit this structure. 2dly, Condylomata have, for the most part, an epidermic structure, although sometimes there may be found in their centres a few fibrous filaments. 3dly, Tumours of a papillary form, which often acquire a considerable size, become tolerably vascular, and ulcerate at their surface. In the lip they are frequently mistaken for cancer; and hence, according to the author, the success which has often attended the excision of such tumours. 4thly, A fourth kind he denominates *fibro-epidermic*. They may occur in a papillary form, and then we find a fibrous concentric mesh-work often surrounding a central canal enclosing vessels, and even small capillary extravasations. The surface is

covered with an epidermic layer, and they constitute the ordinary *verruca*. When this envelope is absent, they form what dermatologists have denominated *verruca achrocordon*. They may be very vascular, and then form the verrucous nævus, so well described by Thomson and Rayer. *5thly*, A fifth and rare kind is caused by the simultaneous development of a large number of papillæ, accompanied by hypertrophy of the sebaceous glands, and constituting large tumours in the form of a cauliflower, covered with a sebaceous or purulent fluid in places where ulceration has occurred. *6thly*, A sixth kind are composed of a dense fibrous tissue, resembling that often seen in cancer, but containing none of the corpuscles proper to the latter. These tumours often ulcerate, and, on the face, have often been mistaken for cancer. *7thly*, A seventh kind are formed of enlarged cysts, the contents of which are epidermic. These are described in a separate section. *8thly*, The last kind are the horny productions which are occasionally found growing on the skin.

2. *Encysted Tumours of Cryptous Origin*.—These tumours have generally been called *hygromatous*, when their contents are more or less fluid; *atheromatous*, when the contents are more or less grumous, resembling boiled oat-meal; *melicerous*, when they have the consistence of honey; and *steatomatous*, when they contain a substance like melted lard. All these forms of tumour are developed in the sebaceous glands. They vary in volume from the size of a small pea to that of a walnut. In general, they only cause slight inconvenience, and seldom inflame without some external irritating cause. Their contents are the same in kind, although relatively they may differ in quantity. They are the more white and grumous in proportion to the amount of epidermis they contain. The yellow and waxy contents are caused by a preponderance of ceruminous fat. The pearly white and laminated matter occasionally met with, is principally composed of crystals of cholesterine. Sometimes small follicular tumours are traversed by fibrinous bands, and probably owe their origin to a fibrinous exudation. The envelope of these tumours is occasionally formed by a membranous condensation of cells, and not unfrequently by a membrane composed of cellular tissue, furnished with blood-vessels. Sometimes earthy particles, amorphous or crystalline, are deposited in it.

3. *Encysted Cellular Tumours*.—These tumours are principally owing to an increased development of cellular tissue, which, when condensed, forms the external covering. They contain a liquid more or less serous, sometimes viscid, or of tolerably firm consistence. They are especially common near serous membranes, and in glandular organs. They vary in size from a millet seed, as seen in the plexus choroides, to that which may be called enormous, as in encysted dropsy of the ovary. They may be simple and isolated, or multiple. Secondary cysts may be developed in the walls of the primary ones, or the whole may be multilocular, exhibiting, internally, numerous intersections. When these growths acquire a

certain volume, we not unfrequently find vascular arborisations in their substance, and on their internal surface a layer of epithelium. The walls of such cysts undergo various transformations. *1st*, They may be so condensed as completely to resemble an accidental fibrous tissue. *2dly*, It may be so dense as to resemble a cartilaginous transformation, although really fibrous. *3dly*, Mineral salts may be deposited in the fibrous tissue, in patches resembling bone. *4thly*, The walls may undergo a fleshy transformation, and are then composed of fibro-plastic elements. These tumours have not been inappropriately named *cysto-sarcomatous*.

The contents of these tumours also vary. Sometimes there is a homogeneous fluid resembling water, at others it is more viscous, of a yellowish colour, containing granules and granular corpuscles. Not unfrequently the contained matter is semi-solid, resembling gelatine, and occasionally we find irregular grumous masses, as if owing to a fibrinous exudation.

As regards the origin of these tumours, the author attributes them, in a certain number of cases, to a condensation of the cellular tissue entering into the healthy structure of the organ. The polyhedric areolæ of the thyroid gland, being thus closed on every side, at length becomes spherical, and then its internal surface may pour out a new secretion, or be the seat of sanguineous or fibrous extravasations. He thinks the cysts of the ovary are formed by hypertrophy, and alteration of the Graafian vesicles, which exist in much larger numbers in the ovary of women and mammifera than is supposed by those who have not examined them microscopically.

4. *Fibrinous Tumours*.—These tumours, which have been well described by Velpeau, are for the most part formed by extravasations of blood, which undergo subsequent changes; often remain for a long period, and become surrounded by a cyst. The changes which the blood undergoes are, *1st*, absorption of the serum, whilst the clot remains. *2dly*, Disappearance of the globules, and preservation of the fibrine in the form of clots, which in the joints are often found smooth on the surface. *3dly*, Earthy masses may be deposited; and, *4thly*, the envelope may be formed by multiple cysts. Thus encysted tumours are often the result of apoplexy, and of exudations into the lungs, spleen, and coverings of the brain. These latter have been well described by MM. Rilliet and Barthez, and by M. Boudet. Contusions and hemorrhages following fracture often give rise to similar extravasations.

5. *Erectile Tumours*.—These tumours have often been confounded with a form of cancer called fungus hæmatodes, but nothing can be more different than such a vascular cancer, and an erectile tumour, properly so called. This is constituted of dilated vessels, between which there exists more or less cellular tissue. The author's account of these tumours contains nothing new, for not having had many opportunities of examining them, the description

given is taken from the article of M. Roux, in the *Dictionnaire de Médecine*, t. 29, p. 822.

6. *Fatty Tumours*.—These are the most *benign* of all morbid growths. The author distinguishes three kinds—*lipoma*, *steatoma*, and *cholesteatoma*. The first presents the well known adipose or fatty tissue. The second is more homogeneous, yellowish, and of a lardaceous aspect. The cholesteatoma is known by its laminated and pearly appearance. In lipoma the fat is enclosed in adipose vesicles, and the tumour may be simple, lobulated, or ramified. In steatoma the fat exists in the form of granules, or concrete masses, not enclosed in vesicles. Cholesteatoma is principally composed of crystals of cholesterine. This kind of tumour has been well described by Müller and Cruveilhier. Fatty tumours are sometimes constitutional, and are then found in various places on the surface of the body.

7. *Melanosis and Melanic Tumours*.—On the substance of melanosis authors have fallen into much error. Dr Lebert has found its elements, as viewed by the microscope, to exist under many forms. 1st, It occurs under that of granules, isolated or aggregated, infiltrating the tissues. 2dly, Under that of granules, enclosed in various kinds of corpuscles, healthy and morbid; thus it is found in the corpuscles of epithelium on mucous membranes, in the interior of globules enclosed in cysts; and, lastly, in the corpuscles of cancer. 3dly, It may be seen in the form of granules in peculiar corpuscles, in which, however, he has never seen a nucleus. It occurs commonly in the lungs, in almost all the tissues, and in every morbid product. Melanosis is sometimes constitutional, and may induce death without being in any way connected with cancer.

8. *Fibro-Plastic or Sarcomatous Tumours*.—Notions, the most vague, exist with respect to what are called sarcomatous growths; for although Abernethy was correct in considering them as peculiar, their real nature is only to be determined by an accurate microscopic examination. These tumours are composed of the elements which constitute the different stages of development of cellular tissue—that is, fibro-plastic corpuscles, fusiform bodies, filaments enlarged in their middle, and complete fibres. Hence the author has denominated them *fibro-plastic* tumours. The fusiform or spindle-shaped bodies have been often mistaken for the elongated cells of cancer, but the differences existing between them will be shown afterwards. These tumours present two forms—1st, They are soft and lobulated, tolerably vascular, resembling certain forms of encephaloma. They differ from it, however, by the absence of the cancerous juice—by a certain dryness and elasticity of their tissue—and by the absence of the ordinary fatty elements. They are composed of fibro-plastic globules, and of a loose fusiform tissue. 2dly, The tumours are fleshy, like a carnified lung; they are sometimes of a homogeneous red, at others the red alternates with yellow,

presenting a finely granular aspect, and moderate vascularity. No juice can be squeezed from them as from cancerous tumours. They are composed of a fibrous mesh-work, and of small globules closely juxtaposed, exhibiting also, in some places, a fusiform tissue, and fibro-plastic corpuscles more developed.

Soft fibro-plastic tumours have frequently been mistaken for cancer. They often form small excrescences on the conjunctiva. They are common in the breast and subcutaneous cellular tissue. The more consistent form of tumour more frequently arises from fibrous structures, when they constitute the osteo-sarcoma so commonly found in the extremities and jaws. To this class also belongs the so-called fungus of the dura mater. The fibro-plastic elements constitute the basis of many hypertrophies.

9. *Fibrous Tumours*.—After giving a very good description of the ordinary appearances of these tumours, he describes their microscopic characters as consisting of, *1st*, Fibres crossing in all directions. *2dly*, Between these, corpuscles and fusiform cells, which are perhaps identical with the fibro-plastic elements. *3dly*, An intercellular substance, fine, hyaline, and often minutely punctuated, uniting the former elements together. *4thly*, There are occasionally found irregular patches, destitute of nuclei and cells, and only containing granules thinly scattered. *5thly*, In rare cases granules and globules of fat. *6thly*, In what is called the cartilaginous transformation, the fibres are exceedingly dense, but there are no new elements. *7thly*, There are, in what have been called the osteoid formations, a greater or less deposition of mineral matter.

These tumours may inflame, soften, and ulcerate, but rarely present the characteristic corpuscles of cancer. A case is cited of a woman who died of cancer of the liver. She had, at the same time, several fibrous tumours of the uterus, which did not contain a single cancerous corpuscle. Hence the one kind of tumour does not exclude the other. Most of the polypi are only fibrous tumours. Those of the nose are formed by hypertrophy of the submucous cellular tissue, which pushes the mucous membrane before it. Dense fibrous tumours often originate in the periosteum; and when they arise from that covering the inferior jaw, are often mistaken for osteo-sarcoma of a cancerous nature. Neuromas are also fibrous tumours.

10. *Hypertrophy of the Mammary Gland*.—Chronic mammary tumours, designated fibrous bodies of the breast, are formed by hypertrophy of the gland. They are lobulated when the granular portion only is affected, but present a fibro-granular appearance when the cellular tissue which surrounds the walls of the gland is also hypertrophied. These tumours may become encysted by condensation of the surrounding cellular tissue—may separate themselves from the gland, and become atrophied by compression.

Colloid Tissue.—The colloid tissue is composed of very fine fila-

ments, separated from each other by an intermediary gelatinous substance, in which are found some granules, and pale granular corpuscles. In colloid cancer, the corpuscles proper to cancer are enclosed in the areolæ of the colloid tissue. It is probable that further observation will conduct us to the distinctive characters between colloid tissue of a benign nature, and cancerous colloid tissue; but the one may exist without the other.

12. *Cartilaginous Tumours*.—The cartilaginous tumours, described by Müller under the name of Enchondroma, constitute a retrograde transformation of bone into cartilage. These tumours are essentially benignant, and generally surrounded by an osseous lamina. They are sometimes semi-transparent, reddish, and vascular; at others, they have a bluish-white or lactescent appearance. They are composed of a fibrous network, the meshes of which are filled up by cartilage, containing nucleated cells, as seen in the embryo of animals. On this subject the author states nothing new, contenting himself for the most part with quoting the description of Müller.

13. *Osseous Tumours*.—Osseous tumours or osteophytes, have their origin in the periosteum, in the bony tissue itself, or in the medullary membrane. Those which are developed between the periosteum and bone, have a peculiar stalactiform appearance. They pass through the same stages of development, as is seen in the formation of bone in the embryo. Thus, these osteophytes follow a contrary course to that observed in enchondroma. With regard to the osseous tumours observed in pregnant and lying-in women, he adopts the conclusions of M. Ducrest, who published a thesis on this subject. This writer observes,—

“It may be concluded, 1st, That pregnancy gives origin in a certain number of women to an osseous production on the internal surface of the cranium; 2dly, That this production exhibits itself proportionally less, as the women are younger; 3dly, That the parts in connexion with it, such as the cranium and dura mater, do not present any peculiar lesion; 4thly, That its presence does not occasion any particular symptom, at least so long as the foramina which give passage to the cranial nerves are not encroached upon.”

Those tumours which have their proper seat in the true osseous tissue, have a dense and eburneated structure, with hypertrophy of the solid elements of the bone, and diminution of its areolæ. Such is the common structure of exostosis or hypertrophy of the bone from various diseases. Hypertrophy of the medullary membrane produces considerable dilatation of the osseous areolæ, with hypertrophy of the osseous tissue which surrounds them. Of this kind are the tumours known under the name of *Spina Ventosa*.

Sometimes a general hyperostosis gives rise to an hypertrophy, which, though not very extensive, is found at the same time in a considerable number of the extremities of the bones and the articulations. Under other circumstances, a deposition is made only in one situation, and a voluminous osseous tumour produced, which

necessitates amputation. The operation, however, is generally followed by the formation of osseous tumours in various organs internally, especially in the cavity of the chest. Such osteoid growths are constitutional, and may be primarily developed in soft parts. They are for the most part constituted of different mineral agglomerations, sometimes aggregated into amorphous masses, at others rounded externally, and stellated or concentrically disposed internally. Occasionally they are formed of plates of cholesterine.

The author illustrates each of the subjects we have gone over with several cases treated clinically, in which the symptoms and mode of treatment are discussed, and the morbid parts described, first, as observed by the naked eye, and afterwards as seen by a careful microscopic examination: the whole presenting what we conceive to be an excellent model for imitation in pathological inquiries.

The Heteromorphous Tumours consist only of the different forms of Cancer.

Cancer is distinguished from all accidental products by its heteromorphous nature; that is to say, it has for its essential and distinctive element, a juice and cancerous corpuscles, which differ from all other forms of corpuscles met with either in health or disease. It has a very marked tendency to produce a general affection of the entire economy, and to invade all the parts which surround it.

Cancer occurs under three principal forms, that of a tumour not very defined, that of an encysted tumour, and that of infiltration of the tissues by the cancerous juice. Its consistence varies according to the organ which contains it, and depends upon the greater or less quantity of fibrous elements in its interior. The various forms of cancer met with have common characters, are physiologically related, and exhibit among them all the intermediary stages. These different forms, therefore, only constitute varieties, and not distinct species.

Cancer is composed of elements which are proper to it, and of others which are found in various productions, and even in the healthy state of the organism. It is a peculiar corpuscle which distinguishes this morbid production from every other. It has a diameter varying from $\cdot 018$ to $\cdot 03$ of a millimetre, with a round or oval form, irregular or fusiform, enclosing a nucleus, the dimensions of which range from the $\cdot 0075$ to the $\cdot 02$ of a millimetre in diameter, with a distinct edge, and of a round or elliptic form. The nucleus encloses either irregular granules, or nucleoli, to the number of from 1 to 5, varying from $\cdot 0025$ and $\cdot 0033$ and occasionally reaching even to $\cdot 01$. With strong magnifying powers we can sometimes recognise in their interior secondary nucleoli. These corpuscles may undergo various transformations, and may become infiltrated with granules or fat, so as to assume the form of granular or fatty globules. We often meet with the nucleus without an enveloping wall,

isolated, or within a membranous expansion, finely puncturated. At other times maternal cells are met with enclosing a certain number of nuclei, and occasionally the cells are formed of several concentric layers.

In that form of cancer, generally known under the name of *scirrhus*, the envelope of the corpuscles is in general well preserved, their form is variable, their nuclei are small. In *encephaloid* disease, the nucleus is more developed, more often elliptic, finely shaded towards the edge, enclosing very distinct nucleoli. These nuclei are often surrounded by an irregular or fusiform envelope. Whatever may be the forms of cancerous corpuscles, we find them in all the intermediary stages.

The following is the author's account of the mode of formation of the cancerous corpuscle :—

“The capillary vessels charged with the excretion of the cancerous matter, deposit it in a state perfectly liquid, either in the middle of the hypertrophied cellular tissue of an organ already cancerous, or between the different elements of an organ which is not yet affected. A short time after this liquid and homogeneous blastema has passed out from the torrent of the circulation, nuclei are formed, in the interior of which nucleoli soon appear. It is not impossible that the nucleus should be formed first, but up to the present time we have not been able to arrive at this fact. We are rather disposed to believe that these nucleoli are formed in the nucleus, when this last has already acquired a certain degree of development. Around the nucleus is afterwards deposited the molecules of blastema, which may form there the irregular plates of an envelope, or become rounded, and then constitute regularly round or oval corpuscles. It is possible that the concentric globules are nothing but ordinary cancerous corpuscles, with all the parts strongly developed.

“We cannot reasonably admit that in a cancer which has continued for a certain time, the globules primarily secreted persist a very long time. After a certain period, they become deformed, lose their clearness of contour, and end in being dissolved in grumous granules. At the same time the blastema, which is always newly deposited in cancer by its nourishing vessels, forms new cells, and hence there are formed corpuscles in every degree of evolution—some recently and incompletely formed—others well developed—and a certain number in process of decomposition.”—Pp. 257-8.

The other elements we meet with in cancer, are: *1st*, Fibres, which form bundles, or cross each other in every direction, with which are mingled fusiform, fibro-plastic elements. *2dly*, Fat, under the form of granules, vesicles, drops of oil, and crystals of cholesterine. The fatty matters give to cancerous tissue, when they become infiltrated to a certain extent, a tubercular appearance. *3rdly*, Large granular globules, similar to those of inflammation, forming in cancer groups of a reticulated figure. *4thly*, Colouring matter is frequently found in notable quantity, either as black pigment (*melanosis*), or as yellow pigment (*Xanthosis*). We often meet with a perceptible quantity of glutinous matter. *5thly*, Vessels are in general sufficiently developed in cancerous productions, and often occasion extravasations of blood, in which are found fibrous mixed with cancerous elements. We also find prismatic crystals, mineral concretions, and sometimes even osseous tissue.

There are two points connected with these non-essential elements of cancer, which we think deserve attention. These are, first, how fibro-plastic and cancerous constituents should be formed in the same blastema; and, secondly, what the author means by Xanthosis. On these subjects he states as follows:—

“The fibres we meet with in cancer are either a simple hypertrophy of cellular tissue in the organ where the deposit has taken place, or they are the production of a new secretion. The cancerous blastema is in no way a liquid of simple constitution, for it holds in suspension, besides the material proper to this kind of alteration, numerous elements which are also found in a normal state of the living organism. These elements are cellular tissue, fat, colouring matter, &c. The cellular or fibrous tissue found in cancer, therefore, is not a production peculiar to it, but only mingles itself with an accidental secretion; and thus these fibres scarcely possess very distinctive characters. We know, on the other hand, that every time it is newly formed in any accidental product whatever, it passes through, so to speak, its embryonal stages. It is consequently natural that, in this case, we should meet with many fusiform fibro-plastic elements. These, then, constitute a secondary element always distinct as they are from the fusiform cancerous corpuscles.”—P. 260.

“We have found pretty often in various forms of cancer a peculiar kind of colouring matter we denominate *Xanthosis* (Ξάνθος yellow) on account of its yellow tint, presenting sometimes a saffron, at others an orange tint; it is found in irregular spots of little extent. Attentive microscopic researches have satisfied us, that it is not the colouring matter of the blood altered, but that it is constituted of a particular species of fat or oil, of a very decided yellow tint. Sometimes, however, we have found the colouring principle under the form of small irregular granules. The form of cancer in which Xanthosis is most frequently met with is the encephaloid disease of the testicle. But we have found it in ulcerated cancers of the breast, in encephaloma of the eye, and in cancer of the cheek”—P. 262.

It is the greater or less development of the essential and non-essential elements of cancer, that decides its particular form. It presents the encephaloid form, when the cancerous corpuscles are well developed and predominate in quantity. Hard cancer, in which there is excessive development of the fibrous element, constitutes scirrhus, and the production of gelatinous matter produces the gelatiniform kind of the disease. When the cancerous tissue is infiltrated with black colouring matter, it is called melanic cancer; and when the disease is highly vascular, it is termed fungus hæmatodes. In some cases this vascularity is purely arterial, with absence of veins.

Cancer attacks the surrounding tissues. Its elements are deposited in the midst of them, and this deposit causes their disappearance. It is not effected by the textures being transformed into the proper substance of cancer, as is ordinarily stated. They disappear by compression and by absorption, but never exhibit the least intermediary form between their normal elements and the corpuscles of the cancer. The tissues most readily acted on are cellular tissue, skin, and muscles; in the next place veins, then bones; and, lastly, tendons and arteries. Little is known with regard to how nerves are affected by cancer.

The hardness or softness of cancer does not correspond to its various stages of development. Very small masses, altogether recent, may be very soft, whilst voluminous cancerous tumours, which have been long developing, may be very hard. Hence it is necessary to distinguish carefully an inflammatory or ulcerative softening from the soft primitive consistence of cancer; the more so, as these have frequently been mistaken for malignant disease. According to the author, cancer is never the direct consequence, either of inflammation, or of alteration in a benign tumour.

It cannot be decided, as a matter of doctrine, whether cancer be only a local disease, inasmuch as surgeons too often extirpate, as cancerous tumours, productions of a benignant nature. Dr Lebert considers that, for the most part, true cancer returns, and that the fearful extent of this is masked by such errors in diagnosis. Thus, surgeons have observed that malignant tumours, especially those of the lip and scrotum, return less frequently than others. In such cases the author has frequently determined that the ulcers were not really cancerous. They were *canceroid* growths merely; among which he also places fungus of the dura mater, constitutional melanosis, and certain forms of fibro-plastic tumours. Still he considers it would be foolish not to extirpate cancer, simply because it has a tendency to return; for the operation, although it rarely causes a complete cure, may certainly prolong life, and greatly alleviate suffering.

The author now enters upon the special pathology of cancer, describes its appearance in various organs, and illustrates each subject in the same manner as when treating of inflammation and tubercle. The work concludes with essays on the following subjects:—1. Formation of Callus. 2. On Tinea Capitis. 3. On Hydatids of the Liver; and, 4. On the principal forms exhibited by the elementary corpuscles in morbid products.

The plates are generally well executed; but we feel satisfied that the figures have not been drawn from nature. The groups of corpuscles appear to us to have been put together for the engraver: they are too frequently placed at regular distances from each other, and, in short, are not represented as they are usually seen under the microscope. There is not a good representation of the granular corpuscle in any of the 22 plates, and we fear that, in too many instances, the drawings have been made from remembrance rather than from the actual object.

We have confined our analysis to those portions of Dr Lebert's work which treat of the General Pathology of Inflammation; Tuberculization; and Tumours. It would have been obviously impossible, in the narrow limits of a single article, to enter on the special pathology of the same morbid processes. We hope to have future opportunities of doing so. In the meantime, we feel called upon to observe, that the subjects treated of are by no means exhausted.

The statement made by Dr Lebert, that differences in the nature of morbid products are always to be detected by differences in their minute structure, is perhaps premature, or, at all events, likely to be misapprehended. Neither do we feel disposed to agree to his sweeping conclusion respecting the invariable essential characters of tubercle and cancer, although we are willing to confess, that if pathologists would consent to consider those morbid deposits only to be tubercle or cancer, which contain the peculiar corpuseles he has indicated, a much greater degree of exactitude would be thrown upon the study of morbid anatomy and pathology. His view with respect to colloid tissue not being necessarily malignant, is deserving of comment. He is certainly incorrect in supposing all kinds of melanosis to be identical; for, independent of form, chemical analysis has sufficiently proved that the black matter of the miner's lung is composed of free carbon, while that of true melanosis is not. There can be no doubt, however, that we shall have numerous occasions of reverting to these subjects.

We cannot lay down our pen without expressing great respect for Dr Lebert, and stating our conviction, that his work will place its author among the first pathologists of the day. It must greatly assist in diffusing just conceptions of the progress of disease, as well as the true principles on which the practice of medicine and surgery should be based.

Practical Surgery. By ROBERT LISTON. Fourth Edition, 8vo. Pp. 582. London.

WE consider that the announcement of a fourth edition of the above work is enough. Praise would be altogether superfluous. The subject is practical surgery, and the author Robert Liston—What need we say more?

Elements of the Theory and Practice of Medicine, designed for the use of Students and Junior Practitioners. By GEORGE GREGORY, M.D. Sixth Edition, 8vo. Pp. 799. London, 1846.

DURING the twenty-five years that this work has been before the public, both the theory and practice of medicine have advanced so very rapidly, that the author evidently has not succeeded in overtaking them in this, the sixth edition. Are we to be told, in the year 1846, notwithstanding the labours of Müller, Valentin, Gerber, Gluge, Henle, Gruby, Vogel, Remak, Lebert, Gulliver, Bowman, Goodsir, and a host of others, that the first instalment of an improved pathology must be sought for in the recent researches of Dr George Johnson! [Preface, p. 8.] Surely Dr Gregory could

not have been serious in making this observation. Be this as it may, we have examined the volume, and, with all deference to the author, whose labours and position we highly respect, are constrained to inform our young friends, that the work belongs to the past rather than to the present. No effort will enable them to gather from its pages a knowledge of the actual condition of the science and art of medicine,—for the simple reason, that almost every subject is treated of only as it was known to exist many years ago.

Part Third.

PERISCOPE.

SURGERY.

LIGATURE OF BOTH CAROTID ARTERIES FOR A REMARKABLE ERECTILE TUMOUR OF THE MOUTH, FACE, AND NECK. By J. MASON WARREN, M.D., one of the Surgeons of the Massachusetts General Hospital.

The patient was a man aged 23 years. The left side of the face was almost wholly occupied by a red discoloration, originally less extensive and lighter coloured than at present. The right side presented the discoloration about half the extent of the left. The lower lip was enlarged and everted, and internally resembled a fungoid tumour covered by red granulations. The whole was surmounted by an irregular ulceration, with thickened edges and a hardened base. The inferior surface of the tongue was covered with granulations, and protruded between the teeth, its left half being enlarged to twice the natural size, and its upper part presenting five or six small ulcerations. The same discoloration observed on the face extended downwards over the chin and neck, covering a space of seven or eight inches in diameter. This mark was congenital. About four years ago the lip and tongue began gradually to swell, and the former shortly after ulcerated. The ulceration has occasionally healed, but during the last year it has been permanently enlarging. On making pressure on the lip or tongue, the blood could be gradually expelled, but on withdrawing the pressure, it immediately returned. The discoloration of the face evidently partook of the erectile character of the tumour in its neighbourhood.

Dr Warren considered that two dangers threatened the patient: *first*, a cancerous degeneration of the ulcerated lip; and, *secondly*, alarming hemorrhage, likely to prove quickly fatal. He proposed, therefore, first, to tie the left, and, after a considerable interval of time, the right carotid, and then to attack whatever portion of the tumour might remain by means calculated to produce contraction of the vessels, and obliteration of the erectile tissue.

Accordingly the left carotid was tied, with the effect, in ten days, of rendering the face paler, of diminishing the size of the tumour, and of inducing a healing disposition in the surmounting painful ulceration. The patient was sent into the country for three weeks, with directions to apply, by compresses, a strong solution of sulphate of zinc to the inside of the lower lip. On his return the tumour was still more diminished, and the discolored parts were more pale, while the health remained good. The right carotid was now tied, and the operation was soon followed by a great diminution of the morbid ap-

pearances. The ulceration of the lip had healed up by the twentieth day after, but the lip itself was still thick, and somewhat everted by the erectile tissue, which entered into its whole substance. Dr Warren now removed the diseased portion of the lower lip by a V-like incision, having previously broken up the vascular tissue, first on the left, and then on the right side, by subcutaneous incisions with a cataract needle. "The portion of the lip removed presented a spongy tissue, like the body of a leech, and gave a sensation in cutting like a bit of diseased lung—parts of it were indurated, from the previous subcutaneous incisions. The muscular tissue had almost completely disappeared."

Little more than two months from the commencement of the treatment, the patient went home quite well. "The discoloration of the face had become much paler, and that of the neck and chest had almost wholly disappeared. The ear had lost its swollen form and deep reddish colour, and had become of a natural size, and of a pale aspect. No pulsation could be discovered in either of the temporal arteries, or, in fact, in any of the arteries of the head. In the neck, just above the clavicle, two large arteries, nearly the size of the carotids, are seen pulsating powerfully under the skin, being, in all probability, the supra-scapular arteries greatly enlarged." Dr Warren adds, "I have had a letter from this patient since his return home, and he is now, nearly four months after, the first operation, in the enjoyment of perfect health, nor has he had the slightest indications of disturbance in the brain from this great interruption to its natural circulation."—Condensed from the *American Journal of the Medical Sciences*, April 1846.

ON EXCISION OF NECROSSED PHALANXES INSTEAD OF AMPUTATION. By M. BOUISSON of Montpellier.

A woman, about 40 years of age, had phlegmonous erysipelas of the fore arm, hand and fingers, the progress of which had been checked by the application of a blister to the affected part. The inflammation, however, localized itself especially on the middle and index fingers, and the thumb of the right hand. Suppuration of the thumb followed, which rendered an incision into it necessary. The opening did not cicatrize, and was at length converted into a fistulous aperture, for which the patient entered the hospital Saint-Eloi, in the month of July 1844.

M. Bouisson having sounded the sinus with a probe, was not long in determining that the distal phalanx was necrosed, and denuded to a great extent. Wishing to preserve the nail-extremity of the thumb, the amputation of which seemed indicated, he made a lateral incision parallel to the axis of the necrosed phalanx; he then seized it with the ordinary forceps, and detached it from its connexions with a bistoury. The operation was easy and quickly performed, and the patient suffered little. The wound was dressed simply, and in eight days cicatrization was accomplished.

The patient remained some time in the hospital. The thumb became shortened, its pulp rendered resistant by the fibrous tissue formed in its centre, and protected behind by the nail, which was slightly deformed, preserved its normal form tolerably well, and was certainly of more service than it would have been if shortened by amputation.

M. Bouisson has performed the same operation in two other cases, with a like favourable result. In one case he removed in the same manner, by a lateral incision, two phalanges of a toe, which had become necrosed after a contused wound. The patient scarcely suffered anything, and the form of the organ was preserved.—*Gazette Médicale*, 6 Juin 1846.

NEW SUGGESTION WITH REGARD TO APPLYING THE TAXIS IN INGUINAL HERNIA. By M. GRYNFELTT.

The method now proposed by this surgeon for effecting the reduction of a hernia is similar in its mode of operation to others, which have been already

proposed, such as the application of cupping glasses over the abdominal parietes. Its object is, by applying mechanical force to the contained viscera, to drag the protruded intestine back into the abdomen, instead of adopting the usual proceeding of endeavouring to push it back through the opening at which it has made its exit.

The following is the description given by M. Grynfeldt of the manner in which he has applied his taxis, in the case of a female, who had suffered from a strangulated inguinal hernia for five days :—

“We flexed the thighs as much as possible on the pelvis, leaving room, however, to grasp the tumour easily. The loins, thorax, and head, were also bent forwards to the full extent, so that the whole body was, as it were, coiled up. The patient, being placed in this position, it is easily imagined, that complete relaxation of the abdominal parietes was produced. Next, with the fingers of the left hand, we seized the hernial tumour at its base, and compressed it slightly. At the same time, with the right hand, we brought the coverings of the abdomen as much towards the external inguinal aperture as was practicable, when, by a simultaneous movement with the fingers applied over the parts, we produced a traction on the hernial contents sufficient to bring them back into the interior of the abdominal cavity. At the first attempt we had the satisfaction of feeling under our left hand, which supported the hernial tumour, the movement of fecal matter, and of the gas contained in the protruded portion of the intestines; when, combining compression of the hernia with the traction of the intestines in the abdomen, we succeeded in the reduction in a few seconds.”

“Our operative proceeding, then, consists in *drawing* back the protruded portion of intestine into the abdominal cavity, instead of trying to *push* it back.”—*Gazette Médicale*, Mai 30, No. 22.

We have no doubt that any cause which can produce traction in that portion of the intestine which is continuous with the contents of the hernial sac, is more likely to effect reduction of the protruded bowel than direct pressure applied over the tumour. The difficulty, however, is to act in any way on the part of the intestine immediately in the neighbourhood of the protruded portion. Medicines administered to increase the peristaltic motion of the bowels cannot act; for we know that the muscular coat, for a considerable way above and below the constricted portion, is paralysed. A plan, which was frequently pursued in olden times with success, was placing the patient with his head downwards, and shaking him up and down, so as to allow the abdominal viscera to gravitate towards the thorax, when a sudden reduction of the tumour was often obtained after the failure of the usual means. The object desired by M. Grynfeldt, we have no doubt, is more effectually obtained in this way than by his mode of manipulating, the description of which appears to us rather obscure. The proceeding, however, appears worthy of trial, particularly, as no undue force is applied to the tumour, the disadvantage and danger of which cannot be too much insisted on. Some time ago, M. Amussat recommended, as the best and most effectual means of reduction, the weight of three assistants being applied simultaneously over the tumour, through the medium of their hands placed over each other. Such practice requires no comment.

ABORTIVE TREATMENT OF CHANCRE.

The following are the views of M. Ricord, as given by M. Veyne, formerly Interne in the Hôpital du Midi :—

To destroy the chancre at the commencement, before the appearance of induration, is the rule to be put in practice in all such cases. To pursue this treatment is to apply to the chancre the treatment generally adopted in cases of bites from snakes or of mad dogs; it is to destroy the local lesion, and prevent the absorption of the virus and the development of constitutional syphilis. Chancre, as a local lesion, is sometimes, by its destructive progress, a very

serious affection. It is of importance, then, to obtain the cicatrization of it as speedily as possible. To destroy the chancre at the commencement, is not, as has been said, to shut the wolf into the fold, but to destroy him at the gate. The abortive method employed in cases of malignant pustule, hydrophobia, &c., does not invariably prevent the development of general symptoms: it is not the less employed on this account in all cases. The destruction, then, of non-indurated chancres ought not to be the less attempted, even though the constitutional affection may not always be prevented by it.

Destruction of the chancre may be obtained, first, by excision; second by cauterization. Excision practised at the seat of the chancre is not certain; the wound sometimes resumes the characters of the virulent ulcer. It ought to be employed in the cases where the chancre is seated on the edge of the prepuce, and where the matter has penetrated into a follicle, and is, as it were, imprisoned within it. Cauterization with a pencil of nitrate of silver is sufficient when the chancre is at its very commencement. The Vienna paste (quicklime 5 parts, caustic potass 6 parts, with a sufficiency of rectified spirit) is more efficacious than the nitrate of silver; it penetrates more deeply into the tissues. It is especially preferable when the ulceration is a little further advanced. The Vienna paste is also preferable to caustic potass, being more easily managed, and more easily limited in its action. In experiments, the Vienna paste has invariably destroyed chancres when it has been applied during the six first days after inoculation. At the separation of the eschar, a simple wound remained, which had a tendency to rapid cicatrization.—*Gazette Medico-Chirurgicale*.

PATHOLOGY AND PRACTICE OF PHYSIC.

CHEMICAL PATHOLOGY OF CANCEROUS DISEASES. By DR JOH. FLORIAN HELLER.

It is the author's intention to give a series of papers on this subject. The present is confined to the state of the blood in cancer of the uterus. The blood examined was of two kinds, that obtained by venesection, and that coming from the uterus itself, in consequence of menorrhagia.

The author commences his paper by remarking, that the question, whether the cancerous formation be owing to a peculiar dyscrasia of the blood or not, has been long mooted, but is one in many things, still unanswered. Our attention ought to be directed both to the composition of the blood and its microscopic examination, for there is little doubt that the pseudo-plastic product is to be attributed to some peculiarity in the state of that fluid.

The views of Engel, who regards the cancerous diathesis as an albuminous crasis, have been widely diffused. According to him, an excess of albumen is sufficient to excite cancer, because in tubercular subjects fibrine is the predominant matter in the blood, and its formative material. This hypothesis of Engel, our author considers a somewhat rash one, as it is based on no direct chemical researches or quantitative analysis. In his first experiment on the menorrhagic blood of an individual labouring under medullary carcinoma of the cervix uteri, our author found 16.44 of fibrine, a quantity never before observed, and was thereby led to farther researches on the subject, as he began to have doubts whether the increased quantity of fibrine in the blood, preceded or accompanied the formation of cancer, for it is a circumstance not to be overlooked, that cancer already formed, may act prejudicially on the organism, and give rise to an anormal constitution of the blood.

In the instances about to be detailed, a short history of the case is therefore prefixed.

In some cases a small venesection was practised, in order that the blood so obtained might be compared with that coming from the uterus itself.

First Case.—No details of this case are given, beyond the analysis of the blood obtained from the uterus, in consequence of menorrhagia, of which the following is the result :—

Proportion of Cruor to Serum.	
Cruor,	543·0
Serum,	457·0
<hr/>	
Composition of the Blood in 1000 parts.	
Water,	832·46
Solid matter,	167·53
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Fibrine,	16·44
Blood corpuscles,	77·03
Serous matter,	74·06
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The fibrine, therefore, amounted to 9·8, or nearly 10 per cent. of the solid residuum, a quantity never before observed.

Second Case.—K. T., aged 39, of strong constitution, had always menstruated copiously, and was a mother before the age of 15. Nine months ago the menses ceased, and were replaced by a thin, ill-looking, brownish fluid; for three weeks past has suffered occasionally from menorrhagia. On examination, on the 21st February 1845, the vaginal portion of the uterus was found converted into a cancerous sore; the anterior walls of the vagina were also affected with the disease. The appearance of the patient was healthy. On the 29th, the blood lost in consequence of the menorrhagia was submitted to chemical analysis, along with an ounce obtained by venesection. The patient died on 3d August, from exhaustion, in consequence of repeated hemorrhage.

Section. Anemia of all the organs—the cervix uteri was in great part destroyed; what remained was converted into a pulposus medullary mass; there was perforation of the vagina and bladder to a twentieth part of their extent.

A. The blood obtained from the uterus was of a dark red colour, and separated into a very tough, ragged, leathery kind of cake, with a very small quantity of red serum.

On examining it with the microscope, no cancerous cells were found: the blood corpuscles varied greatly in size, some being nearly three times larger than natural; lastly, infusoria similar to what are found in the mucus of the vagina, were observed moving briskly about.

The quantity of blood amounted to 27·5 grammes (nearly 7 drachms.) This yielded of fibrine 0·30; consequently in 1000 parts of blood there were of fibrine 10·90.

B. Blood obtained from the arm. The ounce obtained in this way was of a dark red colour, and coagulated rapidly. No thickening occurred from evaporation, as the coagulation was allowed to take place under a bell glass, in a cool place, a method which the author always pursues. There was only a small quantity of a pale yellowish serum. A very thin layer, of an intensely brilliant gold metallic hue, formed on the surface of the serum, as well as the cruor, and very small glistening particles, resembling gold dust, floated on the serum. Under the microscope they shone like gold, and were either opaque, or of a brownish-yellow colour, and transparent. They also appeared amorphous, granulated internally, and sometimes exhibited crystalline spiculæ and granules, on which glistening crystalline surfaces were distinctly seen. From the small number, no further researches could be made into the nature of these bodies.

The blood corpuscles, as in the blood obtained from the uterus, exhibited great variety of size. Globules of chyle were also found, but no oil globules.

The specific gravity of the serum was 1·027 : it contained no yellow-colouring matter. The proportion of cruor to serum was—

Cruor,	474·7
Serum,	525·3

In 1000 parts of blood there were—

Water,	864·0
Solid matter,	136·0

Fibrine,	3·30
Blood corpuscles,	56·90
Serous matter,	75·80

Salts in serum,	4·75
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100 parts of solid matter, therefore, contained—

Fibrine,	2·42
Blood corpuscles,	41·83
Serous matter,	55·72

Salts of serum,	3·48
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Thus, then, the watery parts of the blood are increased, the solid diminished.

If we now examine the difference between this and the solid contents of healthy blood, we find it to be $210 - 136 = 74$; and the difference of the number of blood corpuscles in the two (taking 127 as the mean of healthy blood) is $127 - 56·9 = 70·1$, which is nearly equal to the above number of 74. Thus, then, it is evident that the thinning of the blood is caused by the diminution of the blood corpuscles ; the *fibrine is somewhat increased*, nearly to 0·8 ; the salts diminished nearly 2·0 ; whilst the *albumen appears absolutely normal rather than diminished*.

The third case is related with the same minuteness. The quantity of blood from the uterus examined, amounted to 41·0 grammes (about 10 drachms) : it yielded 0·222 of fibrine, or 5·42 in 1000 parts.

We have besides, an analysis of 47 grammes, obtained from hemorrhoids. It yielded of fibrine 0·21, or 4·42 in 1000 parts.

The number of blood corpuscles was small, reaching nearly to 50·0 only, and the serum matter to 78·0. It will be observed, that the quantity of fibrine in this case was also increased in both kinds of blood : the watery contents also appear increased, owing to the diminution of the blood corpuscles : the solid matters were also diminished.

The fourth case was that of a woman, aged 44, mother of three children. The vaginal portion of the cervix was hypertrophied, considerably elongated, and the anterior lip converted into an ulcerous mass of the size of a goose egg.

Examined by the microscope, it exhibited an areolar tissue, in the meshes of which there were round, dark, and transparent cells, nucleated, and non-nucleated. The diseased portion was removed by the knife, and after cicatrization was complete, a small venesection was practised, in order to obtain a quantity of blood for analysis. The quantity examined was 48·1 grammes : it yielded of fibrine 0·152, or 3·2 in 1000 parts. So that here, also, the quantity of fibrine was somewhat increased. The blood corpuscles were somewhat changed, and the quantity of serous matter normal. In that obtained from the uterus the quantity of fibrine in 44·703 grammes was 0·6, or in 1000 parts 13·42. The blood corpuscles were diminished to an extraordinary degree ; neither the quantity, nor that of the serum, which appeared normal, could be ascertained.

In the fifth case, 33·5 grammes of blood obtained by V.S. yielded 0·155 of fibrine, or 4·63 in 1000 parts.

In the seventh case, the author applied his peculiar method of research for

pus globules to blood obtained by V.S., in order to ascertain whether it contained cancerous cells. In that specimen he found cells corresponding to those of cancer. "They were more or less round, oval, or spheroidal, and varied very much in size,—in some cases being similar to pus globules, in others, much larger. They exhibited throughout a sharp granulation, exactly like that of cancerous cells, and, like these, had two large nuclei, which retained their granulation after treatment with acetic acid, and appeared of a slatish grey colour. These cells are, therefore, tolerably distinct from pus cells; but, besides, there was not the slightest reason to suppose suppuration present anywhere in this patient, or that its absorption could have taken place."

Thus, then, there were certainly found in the blood, cells similar to those observed in cancer. I will not as yet give them the name of "cancer cells," because there are no such known in the blood peculiar to cancer.

The composition of the blood in this case was the following:—

Proportion of the coagulum to the serum,—							
Cruor,	490
Serum,	510
<hr/>							
1000 parts blood contained—							
Water,	805·95
Solid matter,	194·05
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Fibrine,	5·10
Blood corpuscles,	104·00
Serous matter,	84·95

Thus the quantity of fibrine was increased, and the blood corpuscles diminished.

Conclusions.

I. The microscopic researches showed—

1st, That the blood corpuscles always exhibited a considerable variety in relation to their size, being sometimes much less, and at others much larger, than the normal; in the latter case they were often seen three times as large as natural. The smaller were usually finely indented, granulated, or stuck together like pearls (exhibiting the appearance of a mulberry or raspberry), the larger were always smooth. I have also observed this difference of size in the blood corpuscles, in blood containing pus, so that it cannot be described as peculiar to the cancerous dyscrasia, though I have always met with it in the latter.

2d, By pursuing my method in regard to the separation of pus, peculiar cells were found in the blood, such as we see in cancer, corresponding to these in form and properties, and which have never yet been observed in the blood. The reason why I did not discover them in the earlier cases, was probably my not having pursued my method for the separation of pus, and their scarcity caused them to escape observation.

3d, There are found particles of a lustrous golden yellow hue, and a body which, under the microscope, is more or less evidently crystalline, and which possesses a golden metallic lustre; it is most clearly perceived when the field of the instrument is turned in such a way as to darken the object glass; when the light is made to pass through, they partly present a colourless or yellow lustre, and sometimes a bluish tint.

These lustrous particles are observed in most cases with the naked eye, after the blood has coagulated, and they are found either lying in the coagulum in the shape of glistening pellicles, or adhering to in the shape of lustrous golden particles, or they may be observed swimming about in the serum, in which case a slight motion causes them to shine brilliantly.

II. The chemical analysis showed,—

1st, That there was a constant, absolute, and relative increase in the quantity of fibrine, both in the blood obtained from the uterus, and in that obtained by V.S. The quantity of fibrine in both kinds of blood varied, more especially in that obtained from the uterus, in which it was often found to an extent never before observed. Thus, in one case it was 16.44, in another 13.42. In that obtained by V.S., it was generally greater than in the normal state, but scarcely exceeded it by a third. It would appear, therefore, from this increase of fibrine in the blood, nature endeavours to get rid of it, and that in these cases there is an augmentation of blood rich in fibrine in the uterus itself, which is naturally expelled from the body by hemorrhage.

2d, That the quantity of albumen in the blood is normal, or rather under the natural quantity; there is, therefore, no reason to regard the cancerous diathesis, as an albuminous one, and still less to regard albumen, as the matter from which cancer takes its rise.

3d, That the quantity of blood corpuscles is always very small in both kinds of blood, so much so indeed, that anemia was always found on dissection. This great decrease in the quantity of blood corpuscles shows,

4th, That the quantity of solid matters in the blood is always below the normal; and we have seen that this difference is equal to that which is found between the normal and the anormal quantity of blood corpuscles in our cases; so that the increase of watery contents, or thinning of the blood, is to be ascribed to the diminution in quantity of these corpuscles.

Finally, It follows that the cancerous dyscrasia is in no way to be regarded as an albuminous one, and, consequently, as fibrinous, rather than tubercular in its nature.

THE URINE

in cancer of the uterus exhibits nothing peculiar; in all the cases it was voided in natural quantity—was of a light yellow or orange yellow, often of a dirty yellow, and somewhat muddy—it contained flocculi, but deposited no proper sediment. The flocculi consisted of mucus and pavement epithelium. The urine in these cases was often examined, as well as in others, but no cancer cells were ever found.

The reaction was neutral or slightly acid; the sp. gr. 1.014 to 1.020.

When boiled or treated with nitric acid, a very small quantity of albumen was discovered.

Urea was generally normal, sometimes richer, and even in increased quantity. The uric acid was usually normal.

The salts only exhibited a difference in quantity, when slight congestion existed, as shown by the state of the urea and uric acid. In this case the carbonates were diminished, the sulphates and phosphates of soda rich, and the phosphate of lime diminished.

[Condensed from *Heller's Archiv. fur Physiologische und Pathologische Chemie und Mikroskopie*. Heft. 1. 1846.]

TRISMUS NASCENTIUM—ITS PATHOLOGY AND TREATMENT. By J. MARION SIMS, M.D., of Montgomery, Alabama.

The object of Dr Sims, in this paper, is to show that trismus nascentium is dependent "on the anatomical peculiarities of the foetal cranium and spinal circulation, in connexion with the imprudent and careless habit in mothers and nurses, of allowing infants to remain too long in one position,—that the imperfect ossification of the cranial bones is essential to the production of the disease, while the position of the child is its accidental or exciting cause." He rests his opinion on a particular consideration of the anatomical peculiarities of the foetal head, and on the history of several cases; in one of which, treated by himself, the details of the disease and of the post-mortem appearances are very complete. In this case, that of a girl, the attack began on the seventh day after birth, and the tetanic state soon became complete. The infant had been ill

for 48 hours before Dr Sims was called in. On placing his hand under the head, he detected a remarkable irregularity in the feeling of the bones. It had lain during the whole of its illness exactly in one position, the weight of the head resting wholly on the os occipitis. On raising up and leaning the head of the infant against his knee, the rapid amelioration of all its bad symptoms took place. True, the tonic rigidity remained the same, but the clonic spasms became less frequent and less intense; the whole expression was less disturbed, and respiration fell in this short space of time from 120 down to 70 in a minute. On examining the head, he discovered that the fontanelles were open and very large, particularly the anterior—that the bones were loosely attached by their commissures—and that the os occipitis was pushed in on the brain, being overlapped for a quarter of an inch or more along the whole course of the lambdoidal suture, by the edges of the ossa parietalia.

The child died after an illness of about 96 hours. It was found, on a post-mortem examination, that the parietal overlapped the frontal and occipital bones to the extent of a quarter of an inch. The meningeal vessels were full of black blood, particularly posteriorly. A coagulum of blood occupied the spine in its whole length, enveloping perfectly the medulla spinalis; it was thicker as it approached the brain. The spinal veins were full of black blood. The thoracic and abdominal viscera were healthy. There was nothing unnatural about the appearance of the umbilicus.

Two other fatal cases of trismus nascentium are recounted; in one of which, it is affirmed that the infant was always lying on the back, and that the occipital bone was found deeply under and overlapped by the parietal bones; and in the other, that the head was much compressed during labour. He gives two more cases of the disease, in which the occiput was pushed under the edges of the parietal bones, but that a cure was effected by a change of posture.

Dr Sims endeavours to explain these facts by first alluding to the circumstance that the head is elongated during labour by overlapping of the bones, a condition which gradually disappears after birth. "Now suppose," he continues, "the foetal cranium is not sufficiently well ossified to regain its proper shape by its own inherent elasticity; or suppose the child is imprudently retained for a length of time in the recumbent posture on a hard mattress, or a folded blanket with a little bit of hard old quilt, or a bunch of dirty clothes (as we often find amongst negroes) wadded up and stuck under the occiput, what will be the consequence? Why, the occipital bone, instead of regaining its proper position, will be pushed further under the edges of the parietal; and the whole weight of the head resting on the occipital protuberance, will thus force the entire 'pars occipitalis' upwards. If this condition is persisted in, the whole cerebral mass will be displaced: the cerebellum will be compressed between the fossæ cerebelli and the tentorium, and it will thus be tilted forwards so as to produce great pressure on the whole tract of the medulla oblongata, as it rests on the basilar process of the occipital bone. What is the result of this long-continued mechanical pressure, with its peculiar displacements? The circulation through the sinuses and veins of the brain is retarded, the compression of the cerebellum obstructs the cerebellar veins, the posterior edge of the foramen magnum becomes a constricting point on that portion of the medulli-spinal veins, which empty their blood into the inferior cerebellar, the force communicated to the medulla oblongata powerfully obstructs that portion of the medulli-spinal veins, which run forwards over the anterior or lateral edges of the foramen magnum to empty themselves into the petrosal sinuses; and thus the spinal venous circulation, as connected with the brain, is entirely cut off.

"What is the consequence of this constriction, this ligaturing, as it were, of the medulli-spinal veins? Why, at first, there is a simple venous congestion within the dura mater of the cord, produced exactly in the same way that we effect it in the veins of the hand and fore-arm, in the ordinary every-day operation of venesection. After a while, the long tortuous network of thin delicate

medulli-spinal veins is overcome by the persistent constriction above; the blood is extravasated within the dura mater of the cord, enveloping the medulla spinalis perfectly; and then we have the aggravated symptoms that always mark this infallibly fatal stage of the disease.

What is the reason that extravasation does not take place as soon as the constriction is made at the edges of the foramen magnum? Because the medulli-spinal veins communicate by transverse branches with the great spinal lying exterior to the dura mater, and thus the blood is carried into the general circulation by their anastomoses with the vertebral, intercostal, azygos, lumbar and sacral veins. But let the child remain long in this position, and this collateral circulation becomes obstructed. By force of gravitation, the spinal veins all become congested; there is no vis a tergo to drive the blood horizontally forward, or, as I should say (as the child lies on its back), perpendicularly upwards; it almost ceases to flow; and the medulli-spinal ligated above and dammed up on all sides, having no outlet for the blood brought by the anterior and posterior spinal arteries, must necessarily very soon yield and pour out their contents within the tube of the dura mater. To my mind it is clear that the assemblage of symptoms constituting trismus nascentium is the result of pressure on the spinal cord, exerted by venous congestion and extravasation; and it is equally clear that this effused blood is produced in the way that I have described."—Condensed from the *American Journal of the Medical Sciences*, April 1846.

The view taken in the paper condensed above is very interesting, and most probably is, in some measure, well-founded. But ingeniously as it is wrought out, there is not a sufficient number of examples brought to bear on the conclusion. A *prima facie* case is made out, and what is wanting is a series of instances presenting the two conditions—namely, a defective ossification of the bones, and the unusual confinement of the infant to the supine position. And of this the author is well aware, as he calls on his medical brethren, where opportunities of observation are offered, to investigate their cases on the grounds which he suggests.

The supine position is so commonly chosen by nurses for infants, as to fail in the satisfactory characters of an exciting cause; and again, the prevalence of trismus nascentium, under particular circumstances, as among negro infants, hardly accords with the idea of defective ossification being an essential condition of its occurrence. It seems extremely probable, however, from the facts stated by our author, that defective ossification really gives an unusual disposition to the disease, and that the careless management of the position of infants, apparently so common among negroes, concurs with this cause, in many instances, to produce extravasation within the spinal canal. It should not be forgotten, that in this country many curable instances of the slighter forms of trismus nascentium are currently thought to be dependent on irritation of the bowels, removable by purgatives.

Were our author's views absolutely and exclusively correct, it would surely be a more commonly fatal cause of death among infants in this country. We have heard it affirmed by practitioners from the British West India Islands, that this disease has become much less frequent among negro infants, since the emancipation, owing to the greater care bestowed by the mothers on a free offspring.

MIDWIFERY, AND DISEASES PECULIAR TO WOMEN.

ON FIBROUS TUMOURS AND POLYPI OF THE UTERUS DURING PREGNANCY, AND AFTER DELIVERY. By M. AM. FORGET.

Fibrous bodies complicating pregnancy are of two kinds: 1st, those enveloped by and situated in the tissues of the uterus, termed the *interstitial polypus*;

and, 2dly, those which adhere to the surface of the uterus by a pedicle of greater or lesser length, constituting the strictly so-called *uterine polypus*.

1st, *Interstitial Polypi*.—The presence of these tumours, although they do not in any remarkable degree interfere with the phenomena of pregnancy, is yet a matter of vast importance, for they expose the patient to the danger of a hemorrhage, which is not easily arrested. These hemorrhages are easily explained, by the impossibility of the uterus thoroughly contracting on itself after the expulsion of the fœtus, in consequence of the obstacle which these morbid growths oppose to the contractility of its walls. The author, however, cites several cases in which these tumours gave rise to only slight hemorrhages, which were easily subdued.

Another danger to which these growths give rise is rupture of the uterus : they prevent the development of that portion of the organ to which they adhere, and the rest of the uterus undergoes excessive distension, and a proportionate thinning of its parietes. This theory is not supported by any fact.

The conclusions of the author are—1st, that these fibrous tumours are no more an obstacle to fecundation than uterine polypi ; 2dly, that they are not a necessary cause of abortion,—that pregnancy may run through all its phases, even though they are present,—and that where abortion is the result, the time at which it takes place may present a certain coincidence with the position in the uterus which the tumour occupies. Bearing in mind the mode of development of the uterus during pregnancy, it is reasonable to suppose that, if these bodies occupy the fundus, or the whole of the superior segment of the uterus (that part, in short, which is the first to be developed), that abortion will happen in the early months ; and that, if it is the lower portion of the uterus which is affected, abortion will not ensue until later. *Lastly*, observation shows that, in general, the danger arising from these tumours does not commence until parturition sets in ; it is frequently followed by hemorrhage, which is often speedily fatal. A case is mentioned, in which a woman, whose uterus was thus diseased, was twice delivered ; the second time she suffered from a dangerous hemorrhage. If we can learn by examination that one of these tumours exists, the probability is that there are several others ; for morbid anatomy shows us that they almost never exist singly.

On the second variety of polypi the author draws the following conclusions : —1st, Polypi of different sizes, sometimes very voluminous, whether situated in the vagina or in the uterus, offer no obstacle to pregnancy, and but little inconvenience to parturition. We have seen abortion once only with this complication. 2dly, When the polypus is situated on the internal surface of the uterus during pregnancy and after delivery, the danger for the mother is imminent. When it is situated in the vagina, at the period of parturition, and has acquired considerable volume, the danger for the child is most serious. The author cites five instances of children still-born in consequence of the presence of a polypus in the vagina. In these cases, the diameters of the pelvis being diminished by the presence of a foreign body, labour is retarded, and the fœtus asphyxiated during its passage. 3dly, The author details the symptoms. These our readers will find better described in the No. of *Guy's Hospital Reports* for April 1844.

4thly, It is of importance as quickly as possible to establish a correct diagnosis, not only in consequence of the hemorrhage, which the least delay may render mortal, but also in consequence of the injuries which might result from improper interference, if the accoucheur supposed that the cause of the uterus continuing enlarged was the presence of a second fœtus, while in reality it was a polypus ; this mistake has occurred, and the measures adopted in consequence were, in the words of the author, "*pas étrangères à la mort de la femme*." The contractions alone of the uterus upon a polypus have sufficed, where the body was large, to produce inversion of the organ. 5thly, The hemorrhage may be primitive or consecutive, continuous or intermitting ; it is often sudden and abundant. In several instances it has not supervened until several

weeks after labour. *6thly*, As to the surgical indications: it is reasonable to delay operation when the polypus is in the vagina, and to wait (if there be no cause for haste) until the uterus has returned to its normal anatomical and physiological conditions. In the case of intra-uterine polypi, we must endeavour, by repose and opiates, to diminish the exalted sensibility and vitality of the uterus, provided the hemorrhage be only trifling; but, if it be abundant, we must act with promptitude, for fear the woman be exhausted. In the absence of hemorrhage, the persistence of the uterine contractions, and the continuance of pains, equally demand the intervention of the surgeon. *7thly*, The polypus may be noosed, excised, or twisted off, either immediately or after delivery, or later. The ligature alone ought always to be used, if the polypus is not very large; but if the weight of the body is such as to give rise to tractions which cause severe pain, the ligature may be followed by excision. Excision is to be rejected in all cases where the patient has been exhausted by hemorrhage; but even should this not have been the case, the ligature is nevertheless indicated, for the operator might meet with large vessels in the pedicle, presenting a dangerous source of hemorrhage, from the modifications the vascular system of the uterus has undergone during the recent pregnancy.—*Bulletin de Thérapeutique*, Avril 1846.

OBSERVATIONS ON THE NATURAL PERIOD OF DELIVERY. By DR LERAY.

1st, The natural term of delivery, as well as premature delivery, has a certain connexion with the menstrual periods. *2dly*, The return of these periods during the whole duration of pregnancy agrees with the period of the month corresponding to the date of the day on which the catamenia commenced to appear for the last time, whatever may be the number of days reckoned to each month. *3dly*, The premonitory symptoms of delivery at the natural term or premature commence, in the majority of females, at the date mentioned, or during the seven days immediately succeeding. *4thly*, Nevertheless, the commencement of the expulsive pains may still occur in the normal manner, but much less frequently, at the fifteenth day of the tenth month. *5thly*, Every delivery, whether at the natural term or premature, which occurs before the date mentioned, may be considered as accelerated. *6thly*, Every delivery which occurs after the period mentioned may be considered as protracted. *7thly*, The accelerations are proportionably much less numerous than the protraction; more commonly they do not precede the term specified by more than five days. *8thly*, The protraction, on the contrary, are not limited by any period. *9thly*, In either case the causes of acceleration and protraction are very appreciable, although cases do occur where no cause can be assigned.—*Journal de Médecine de la Loire Inférieure*, 1846.

ABCESS IN THE PELVIS OPENED THROUGH THE RECTUM. By M. COMPERAT.

A woman, *ætat*. 37, who had had two children, had suffered for several days from severe pain in the lower part of the abdomen, and considerable fever. Examination by the rectum discovered a tumour projecting from behind, and to the right of the bowel, fluctuation was distinctly felt, and puncture was resolved on. The tumour was so high that the point of the forefinger could with difficulty reach it. M. Comperat introduced a pair of long sharp scissors, guided and shielded by the finger. A puncture was made, and the branches of the instrument were then separated, in order to enlarge the opening. During this proceeding M. Comperat compressed the abdomen with both hands, in order to make the tumour project downwards as far as possible. During the succeeding days the opening became so contracted, in spite of the introduction of the finger, that it became necessary to dilate it again. A pair of longer and stronger scissors were introduced, having on their blades a projection which enabled them to catch the lips of the wound, and prevented them, when

opened, pushing themselves out by the resistance presented by the edges of the wound. The ordinary *brise pierre* was then introduced two or three times daily, and its branches separated to open the wound. In consequence of the repeated introductions of instruments and the fingers, the anus acquired a degree of irritability which made these manipulations a state of extreme torture to the patient. To remedy this M. Recamier proposed and executed the following procedure :—He collected the fingers of the right hand in the form of a cone, and by pressing forward with alternate pronation and supination, he passed his hand through the anal ring ; he then doubled his fist, so as to increase the volume of the mass within the rectum ; he then withdrew his closed fist rapidly. This procedure caused intolerable suffering to the patient ; immediately thereafter the anus contracted spasmodically for several hours ; a state of quiescence was soon re-established, and from that moment the introduction of the finger and the dilating instrument caused no pain.—*Gazette Médicale de Paris*, Mai 1846, p. 432.

A vast deal of unnecessary manipulation and suffering might have been saved to this patient, if instead of scissors a long curved trocar and canula had been employed, as we believe, was used in a case by Professor Simpson of this city.

PLACENTAL PRESENTATION. By M. DESMOLIN.

Two instances of this complication are recorded in the April number of the *Clinique de Montpellier*. In both cases the mothers recovered, the children were dead, and delivery was effected by turning. The author states, that both infants presented exactly those appearances which are observed in children that have died from hemorrhage.

Part Fourth.

[Owing to the unexpected length of some original articles, we are obliged to defer much of the *Periscope* and *Medical News* until next number.]

BOOKS RECEIVED.

In future, all Works received before the 20th of the Month will be regularly acknowledged.

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| <p>1. Three Reports by the Joint Deputation of the Society of Apothecaries and the National Association of General Practitioners, appointed to confer with the Secretary of State on the subject of the Incorporation of the General Practitioners in Medicine, Surgery, and Midwifery. London, 1846. 8vo, pp. 46.</p> <p>2. The Hunterian Oration delivered at the Royal College of Surgeons on the 14th of February 1846, by W. Lawrence, F.R.S. &c., London. 8vo, pp. 68.</p> <p>3. Analysis of the Evidence in favour of the Constant Supply System, given before the Health of Towns Commissioners, with remarks thereon. By Thomas Wickstead, Esq., Civil Engineer. London, 1846. 8vo, pp. 46.</p> | <p>4. The Medical Police of the United Kingdom. (From the Westminster Review for March 1846.) Pp. 35.</p> <p>5. Practical Observations on the Use of Ox-Gall in the Treatment of various Diseases. (From the Medical Times.) By Charles Clay, M.D., &c. 1846. Pp. 16.</p> <p>6. Historical and Critical Remarks on the Operations for the Cure of Cataract. By Alexander Watson, M.D., &c. (From the Edinburgh Medical and Surgical Journal, No. 165.) 1846. Pp. 35.</p> <p>7. Instructions for making Unfermented Bread, with Observations. By a Physician. London. 8vo, pp. 15.</p> <p>8. Outlines of Naval Surgery. By John Wilson, Surgeon, R.N., &c. Edinburgh, 1846. 12mo, pp. 134.</p> |
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9. Practical Surgery. By Robert Liston. Fourth edition. London, 1846. 8vo, pp. 582.
10. Elements of the Theory and Practice of Medicine. Designed for the use of Students and Junior Practitioners. By George Gregory, M.D., &c. Sixth edition. London, 1846. 8vo, pp. 799.
11. Remarks on the Dysentery and Hepatitis of India. By E. A. Parkes, M.B., &c. London, 1846. 8vo, pp. 271.
12. Notes and Recollections of a Professional Life. By the late William Fergusson, M.D., &c. Edited by his son, James Fergusson. London, 1846. 8vo, pp. 248.
13. Manual of Operative Surgery, based on Normal and Pathological Anatomy. By J. F. Malgaigne. Translated from the French by Frederick Brittan, M.D., &c. London, 1846. 12mo, pp. 586.
14. Abstract of Researches on Magnetism, and on certain allied subjects, including a supposed new Imponderable. By Baron von Reichenbach. Translated and abridged from the German by William Gregory, M.D., &c. Professor of Chemistry. London, 1846. 8vo, pp. 112.
15. System of Surgery. By J. M. Cheulus. Translated from the German by John F. South, Professor of Surgery, &c. Part IX. London, 1846. 8vo.
16. A Manual of Physiology, including Physiological Anatomy, for the use of the Medical Student. By W. B. Carpenter, M.D., &c. London, 1846. 12mo, pp. 582.
17. Transactions of the Medical Society of London. New Series, vol. 1. London, 1846. 8vo, pp. 221.
18. Remarks upon Medical Organization and Reform (Foreign and English.) By Edwin Lee. With an Appendix. London, 1846. 8vo, pp. 121.
19. The Structure and Functions of the Female Breast, as they relate to its Health, Derangement, and Disease. By E. W. Tuson, F.R.S., &c. London, 1846. 8vo, pp. 485.
20. The Mineral Waters of Kreuznach. By J. E. Preiger, M.D., &c. Translated by Oscar Preiger, M.D. London, 1846. 8vo, pp. 92.
21. On Disorders of the Cerebral Circulation, and on the Connexion between Affections of the Brain and Diseases of the Heart. By George Burrows, M.D., &c. London, 1846. 8vo, pp. 220.
22. Lectures on the Urine, and on the Pathology, Diagnosis, and Treatment of Urinary Diseases. By John Aldridge, M.D., &c. Dublin, 1846. 8vo, pp. 80.
23. Introductory Lecture to a course of Military Surgery, delivered in the University of Edinburgh, by Sir George Ballingall, Surgeon to the Queen, &c. 8vo, pp. 23.
24. The Nineteenth and Twentieth, and Twenty-first Annual Reports of the Officers of the Retreat for the Insane at Hartford, 1843, 1844, and 1845. 8vo, pp. 23, pp. 31, and pp. 24.
25. Report of the Pennsylvania Hospital for the Insane, for the year 1845. By Thomas S. Kirkbridge, M.D. Philadelphia, 1846. 8vo, pp. 56.
26. Twenty-fifth Annual Report of the Bloomingdale Asylum for the Insane, for the year 1845. New York, 1846. 8vo, pp. 48.
27. Seventeenth Annual Report of the Inspectors of the Eastern Penitentiary of Pennsylvania. Philadelphia, 1846. 8vo, pp. 72.
28. Annual Report of the Royal Edinburgh Asylum, for the year 1845. Morningside, 1846. 8vo, pp. 27.
29. Statistical Tables of the Royal Infirmary of Edinburgh. Fifth Series. By John Hughes Bennett, M.D., &c. Edinburgh, 1846. 8vo, pp. 14.

THE
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No. LXVIII.

AUGUST 1846.

No. 2. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Amputation at the Ankle.* By JAMES SYME, Esq.,
Professor of Clinical Surgery in the University of Edinburgh.

IN the number of this journal for last month, I find the following passage extracted from a foreign medical periodical:—

“A tibio-tarsal amputation was performed some years ago on a young soldier, by Dr Baudens. The patient could walk very well for a year afterwards with an ordinary shoe, attached by two metallic splints. He walked considerable distances in this manner without fatigue, ascended and descended stairs easily, danced and leapt with agility. This patient afterwards entered the hospital wards of the Hotel des Invalides, where he has remained several months. His stump became excessively painful; the cicatrix re-opened, and ulcerated in many places. Two abscesses, which formed in the tissue of the cicatrix, were opened a few days ago, by M. Hutin, and it is probable that the subjacent bones were diseased. The patient experiences great suffering, and eagerly demands another amputation near the knee.

“This case gives rise to certain questions, of which our readers have to demand an account. First, we must remark, that the indifference with which civil and military surgeons have received the memoir of M. Baudens, is no proof of the non-value of the operation, for it has been performed by Mr Syme of Edinburgh a dozen times with perfect success. It is true, however, that Mr Syme has generally operated on children, and that he has only published the immediate results of the operation. Now the question is, what are the remote consequences? since, in the case of M. Baudens, the cicatrix did not inflame, ulcerate, or re-open, for more than a year after the operation. It becomes the more important to know the actual state of Mr Syme's cases, as it might

enable us to decide, whether the bad condition of the cicatrix in the patient now at Les Invalides depends on a constitutional disease (as we presume is the case), or on the form of the flaps, or of the stump. We should remember, however, that in the operation of M. Baudens, the head of the malleolus was sawn through after the disarticulation, whilst Mr Syme preserves the malleolus intact. We must say, that until new facts enlighten us on the subject, and notwithstanding the great aversion that the civil and military surgeons of Paris experience in adopting the tibio-tarsal operation, we persist in believing it advantageous in many cases. We amputate at the articulation of the wrist, why then hesitate at the same point in the inferior extremity?"¹

With reference to this statement, I beg to mention,—1. That I have operated in more nearly two than one dozen of cases with perfect success,—2. That most of the patients have been adults,—3. That I have in no instance “preserved the malleolus intact;” and have always removed the whole articulating surface, except once or twice, when I detached the malleolar processes, by means of cutting pliers; having on all other occasions sawn off a thin slice from the tibia, connecting the projections of bone at each side—and, 4. That the following letters relative to the two cases, which were first subjected to the operation, and gave rise to my original papers, will, I hope, be considered satisfactory evidence as to the “remote consequences.” In the first of these cases, the disease being seated between the astragalus and os calcis, only the malleolar parts of the articular surface of the ankle were removed. In the second, as the ankle joint itself was extensively carious, the whole articulating surface was removed by the saw.

As to the mode of performing the operation, I have nothing to say in addition to what has been already stated, except that I find a flap sufficiently large for the purpose, is obtained by cutting from the centre of one malleolus to that of the other, right across the sole of the foot; the dissection from the os calcis is thus facilitated, and the risk of sloughing lessened, if not entirely prevented.

From THOMAS AITCHISON, Esq., Surgeon, Dunbar, to Mr SYME.

Dunbar, 4th June 1846.

MY DEAR SIR,—It gave me great pleasure to hear, by yours of the 2d instant, that the boy Fargie's case is likely to terminate so satisfactorily.

I sent for the boy Wood, whose life was spared by a similar operation, executed by you two or three years ago (September 1842, age 16). I examined most carefully the *stump*, which was all sound. He had had a renewal of the false foot since he had seen you. He told me he suffered no inconvenience from the stump, or the slightest tenderness. He has become a country tailor, and

¹ *Annales de Thérapeutiques*, Mars 1846.

has often ten and fifteen miles a day to go to his work; still he feels no *discomfort*. He says, he, with a few of his young comrades, ran off to see the operations of the North British Railway at Penmanshiel tunnel, and must have walked fully thirty to thirty-five miles, without feeling his amputated limb.

You may rely upon it, nothing can be more satisfactory than this case of the boy Wood; and if Fargie's and all similar cases prove, under your hands, as successful, amputation at the ankle-joint, and its effects, will prove the greatest blessing to the human race, especially those unfortunates so afflicted.—I am, my dear Sir, yours most faithfully,

THOS. AITCHISON.

The young man Fargie, alluded to by Mr Aitchison, had suffered from caries of the tarsus for fourteen years. He had the foot amputated, and left the hospital, restored to health, and with a sound stump, six weeks after the operation.

Dr ——— to Mr SYME.

Edinburgh, 9th June 1846.

DEAR SIR,—You will remember that I lost my foot in January 1843. The stump healed rapidly, and in six weeks had all closed, except one small aperture, from which a slight watery discharge continued to come till the month of June, when it suddenly ceased, and complete cicatrization occurred. Since that period, I have experienced no pain, or uneasy sensation of any kind, in the stump, nor any tenderness, making standing or walking irksome or unpleasant. I have very rarely experienced the feeling of the lost foot being still part of the body and the seat of pain, which is so common a complaint among those who have been deprived of limbs. For the last two years, I am not aware that I have known this sensation at all; if I have, it has made no impression on my memory. I can lean the weight of my body on the naked stump without inconvenience; and, with a single stocking over it, am in the habit of walking through the house when my boot is not at hand.

The artificial foot I wear, within an ordinary half boot, is made of light wood, with a spring across the part corresponding to the roots of the toes. This spring, however, is of no use, as the rigidity of the boot enclosing it prevents it acting. The foot might as well be made of one piece of wood. At the heel, it is hollowed into a concavity, corresponding to the shape of the stump, but rising up before and behind into two prolongations, which, seen in section, would resemble the horns of a crescent. The foot is cased in shamois leather, which is carried up from the borders of the concavity, and cut into the shape of the upper part of a lady's cloth boot. Like it, also, it is laced up the inner side, and has a tongue; the latter is made of thick soft leather, and is of much service in securing the fitting of the foot. There are no straps or buckles, or steel supports of any kind, nor are they needed. From the bulbous form of the stump, and its circumference being considerably greater

than that of the leg above it, the lacing of the upper leather completely suffices to hold the artificial foot on. It would be impossible, indeed, to pull it off, without loosening the lace or tearing the leather.

The artificial foot, as originally furnished, was thickly padded; but I found the padding so apt to shift, and so liable to become uncomfortable from saturation with moisture, that I had it all removed. It is much more convenient to pad the stump, by covering it with two or more worsted or shamoy leather stockings, which can be changed at pleasure. I use a stick in walking; but, except on rough causeways or very uneven ground, it is unnecessary, neither is it requisite in ascending or descending stairs.

The results of an inflammatory attack of the lungs make me a bad walker, nor have I ever ascertained how long a pedestrian journey I could achieve; but I have stood for six hours (not consecutively) daily, for months together, without any inconvenience, and I wear the artificial foot, without intermission, from morning till bed-time.

Very sincerely, ————

This gentleman was in such a state of weakness and illness at the time of the operation, that, in my opinion, he would not have had the slightest chance of recovery from amputation of the leg.

ARTICLE II.—*Case of Primary Cancerous Infiltration and Ulceration of the Lungs, with Remarks.* By JOSEPH BELL, Member of the Faculty of Physicians and Surgeons of Glasgow, Lecturer on Botany, Andersonian University, Glasgow.

(Continued from p. 33.)

REMARKS.—1st, *Diagnosis*.—I have no hesitation in confessing, that it gave me a very great amount of consideration before I could come to a satisfactory conclusion regarding the nature of this case. It was not until, after several careful examinations, and much reflection, that I entered the following diagnosis in my note-book.

Cancerous Infiltration, and Ulceration of both Lungs—the existence of a malignant tumour at cardiac region—Emphysema of right lung—also Cancerous Degeneration of Stomach.—It may not prove uninteresting to review the reasoning which led me to form the above opinion, particularly as it embraces the principles of the diagnosis of pulmonary carcinoma.

In forming an opinion regarding the precise nature and seat of the lesions upon which the symptoms in this case depended, it will at once appear evident to the practitioner of any standing, that four diseases chiefly required to be taken into consideration, viz. Pleuritis, Pneumonia, Phthisis, and Cancerous Infiltration.

1st, *Pleuritis*.—Though we had extensive dulness on percussion, diminished vocal fremitus, absence of vesicular murmur, &c., yet

there was not any of that fulness of the intercostal spaces which exists in pleurisy of long standing: on the contrary, these spaces were much deepened. Again, though in old pleuritic cases, when the effused matters are absorbed, retraction occurs, yet the intercostal spaces almost invariably become narrowed and obliterated, giving the side a smooth appearance. Besides this, we had no procidentia of the shoulder, tilting of the scapula, or curvature of the spine. The percussion sound was much duller, and there was also much more resistance than I have ever met with in the oldest pleuritic affections. Still farther, the bronchial respiration was more extensive, and combined with moist mucous and muco-cavernous rales. Again, we had only a slight friction sound, audible at upper part of sternum and apex of the left lung, over the very spot at which an imperfect pectoriloquy was heard, and where percussion yielded the clearest sound.

The general history of the case was not indicative of chronic pleuritis. We had not an affection which had been at one time more acute, and was either subsiding or remaining stationary, but one that was gradually becoming more and more severe. The matters expectorated were very different from the sputa of pleurisy. From considerations such as these, I could not view the case to be one of pleuritis, still I was inclined to think, from the pain and other circumstances to be noticed again, that some lymph was effused, especially about the anterior mediastinum and upper part of left lung. No symptoms of pleuritis existed on right side of chest.

2. *Pneumonia*.—In the *first* place, we had retraction of the left side—an appearance not seen in pneumonia, especially of the extent that could give rise to the same amount of dulness and bronchial respiration, as existed in this instance. *Secondly*, The entire absence of any crepitation. Even in extensive and chronic cases of hepatization, it is rare not to find a crepitant rale at some part of the lung. *Thirdly*, The presence of extensive cavernous mucous rales, and the absence of rusty or purulent expectoration. *Fourthly*, The general history of the case, its progress and duration, the absence both of inflammatory fever, and the symptoms of an acute disease; whilst, on the other hand, we had signs of centripetal pressure. These, and other very obvious circumstances, combined to render the notion of pneumonia out of the question. The phenomena detected on the examination of right lung were likewise very different from those which usually attend inflammatory consolidation of the parenchyma of the pulmonary organs.

3. *Phthisis*.—*First*, In tubercular deposition we have not, in general, the extensive dulness which was detected here. *Secondly*, The expectoration was very dissimilar to that attending ulcerated tubercles; it was of a greenish colour, the consistence of cream, the sputa running readily together, forming one homogeneous mass, which floated on water like oil. On examining the vessel in which the expectoration was collected for my inspection, I have

been often struck with its peculiar green hue, as well as its consistence, being without traces either of mucus or air, swimming in one dense stratum on the surface of the water—an appearance very different indeed from that which either the sputa in phthisis exhibit, or in any other affection of the lungs which I have ever seen. *Thirdly*, The general symptoms were much less severe than we would have had in a case of tubercular deposit, that would give rise to such extensive dulness and retraction as existed at left side. *Fourthly* The absence of many of the usual signs of phthisis, such as emaciation, hectic fever, colliquative perspirations—indeed the man never perspired, on the contrary, his skin was abnormally dry, and had a harsh scruffy feeling. *Fifthly*, The fulness of the neck—puffiness of the face—unnatural prominence of eyes—œdema of the upper extremities,¹ none of which I have ever witnessed in tubercular consumption. *Sixthly*, The history of the case was not characterised by the usual phenomena of phthisis, either at its commencement, or throughout its whole progress.

4. In the *last* place, we have to study the symptoms in reference to CANCEROUS INFILTRATION IN THE LUNGS, many of the ordinary phenomena of which disease were peculiarly well developed. Some of these I will briefly notice in detail.

1. *Dyspnœa*.—This is one of the most prominent of the symptoms that have been observed in cancer of the lungs. In the present instance it was among the most harassing of the patient's sufferings. From this cause he was unable, for several weeks, to assume the recumbent position—(when he could do so, decumbency was on the back, with slight inclination to right side). Even whilst sitting his difficulty of breathing was exceedingly great.

2. *Cough*.—In all the cases which I have read, this has been invariably present; in my patient it was intensely severe.

3. *Dysphagia, Stridor, and weakness of voice*, were prominent symptoms in this case, and they have been found equally so by other observers. The sense of constriction is experienced either at the top, or centre of sternum; but it often disappears in the course of the disease, as it did in this instance. Not so, however, the alteration of the voice which became gradually weaker.

4. *Pain*.—This may be considered as probably the most frequent of the phenomena that have been noticed in cancerous degeneration of the lungs.

In the various cases that have been published (with one exception²), severe pain was present at some period of the disease, sometimes being most intense, at others becoming mitigated, and even occasionally disappearing for a time, and then returning, thus

¹ I have sometimes seen in the last stages of phthisis swelling of the hands and wrists occur, only, however, to a slight extent, and that almost immediately preceding death.

² In Canstatt's case, there was no pain experienced by the patient.—*Vide* Walshe "On Nature of Cancer," p. 349.

putting on an intermittent character. In the case now read, when I first saw the patient, the pain at centre of sternum and cardiac region was most intense; it was described to be of a sharp cutting nature, and darting in various directions. Pain of a continued character is said by Dr Stokes to be one of the most diagnostic symptoms of the affection. The pain is not, however, always experienced in the immediate site of the malignant deposit. In my patient's case, it had no such connexion; indeed, he never had any fixed pain either in right side of chest, or even on left, except at the two places mentioned, at which localities there existed *no disease*, except the effusion of lymph under the sternum. Though I agree with Walshe in thinking, that, in the majority of instances, the immediate seat of the pain is obviously the pleura, inflammation of this membrane being often induced; yet I am inclined to view this as only *one* source of pain,—in many cases I believe it to be neuralgic. Be the cause of the pain what it may, the symptom must be viewed as one of the most frequent and constant of the phenomena characteristic of pulmonary carcinoma. In the only other case of the disease which I have ever seen, constant and continued severe pain was experienced by the patient, *at centre of sternum, for many months*, before dysphagia, dyspnoea, and cough commenced. This case came under my notice when I resided at Barrhead. I will add a brief summary of its leading features. Mrs Howie, aged about fifty-six years, mother of several children, during two or three years was harassed with severe pain at middle of sternum, darting as from a centre through chest in every direction. On taking food, she affirmed that it never got past the seat of pain, but remained there, causing her intense agony, until she vomited: she had severe attacks of cough and great difficulty of breathing. Percussion elicited a dull sound over lower part of right side of chest, and no vesicular murmur was audible at this place. The sonorous and sibilant rales of bronchitis were profusely heard over other parts of thorax. During three years, she was an occasional patient of mine for these complaints—the bronchitic affection, though easily mitigated, I could never altogether remove; as regards the pain and dysphagia, numerous remedies were used without procuring any relief. I had diagnosticated either a cancerous tumour at lower part of right lung, or a cancerous affection of œsophagus, or probably both.

The poor woman becoming, I presume, tired of the merely temporary and partial relief which she obtained from the remedies employed, applied for advice to my friend, Dr Mackinlay of Barrhead. When he saw her, the pain at sternum, dysphagia, and cough, had completely disappeared; the prominent symptoms being constant vomiting, pain at epigastrium, and the other signs which usually attend cancerous degeneration of the stomach. After a long period of severe suffering she died. Through the kindness of Dr Mackinlay, I was present at the post-mortem inspection. The cavity of the

stomach was found almost completely obliterated,—it would not contain more than half an ounce of fluid; its walls were at least two inches thick, and presented a most beautiful specimen of the mastoid variety of encephaloid degeneration (being exactly similar, both in appearance and consistence, to the boiled udder of a cow). The lower and middle lobe of right lung was infiltrated with tuberculous encephaloid masses, varying in size from that of a hazel-nut to that of an ordinary sized orange; none were excavated; some were melanotic; and others were softened at the centre. The external portions were, in all instances, of much firmer consistence than the central. Several of the bronchial tubes were greatly thickened—sections of their walls presented a pearly-white striated appearance. Neither effusion of lymph, serum, nor *any signs of pleuritis existed*. The œsophagus was free from disease.

It was the peculiar pain and the dysphagia which I observed in this woman's case, that led me at first to suspect the existence of malignant disease in the one which I have brought under your notice to-night. This suspicion amounted to a conviction, when I made the foregoing review of the symptoms in reference to those of carcinomatous disease of the pulmonary organs, and the other affections with which it is likely to be confounded, especially when these symptoms were taken in conjunction with the fulness of the neck and face—diminution of vocal fremitus—a difference of strength in the radial pulses, and retraction of left side, which phenomena have been almost invariably observed in all the cases of malignant disease of the lung that have been published.¹

I therefore diagnosed carcinoma of left lung with slight effusion of lymph at anterior mediastinum and apex of left lung. In consequence of the projection of the ribs at region of heart, and the severe continued pain which the patient experienced there, along with the extreme dulness on percussion, I was of opinion that a malignant tumour existed at this part.

Judging merely from percussion, one would have been inclined to consider that little or no disease existed in *right lung*, the sound elicited being only a slight degree below the normal clearness, and that only at clavicular regions; but then the sounds of emphysema were so extensive, that if no condensation had existed, a clear tympanitic sound would have been elicited by percussion. In fact, though the emphysematous condition increased considerably during the progress of the case, yet the sound, on percussion, remained nearly unaltered. This circumstance, combined with the absence of vesicular murmur, and the presence of other abnormal rales, indicated the existence of very serious condensation and destruction

¹ I beg to acknowledge the great assistance which I received in forming my diagnosis in this case, from that excellent little work, "Walshe on the Physical Diagnosis of Diseases of the Chest;" and also the valuable information which I have derived from a perusal of the same gentleman's truly excellent monograph on the "Nature and Cure of Cancer."

of the pulmonary tissue. But was this of a cancerous nature? Some writers state, that when both lungs are found evincing the signs of disease, that the affection is more likely to be of a tubercular *than of a carcinomatous character, simply, however, because the latter has been seldom found to exist simultaneously in both lungs.*¹ Authors also affirm, that the existence of the signs of ulceration will tend still farther to confirm the presence of tubercle, and not of cancer, *because the latter has been rarely found in an ulcerated condition.*

Though for a time these considerations gave rise to considerable doubts as to the nature of the case, yet, after mature reflection on the different circumstances to which I have already adverted, I came to the conclusion that the right lung was also the seat of cancerous deposit. The retraction, the presence of extensive mucobronchial and cavernous rales, and the profuse expectoration, were sufficient evidence that the disease existed in an infiltrated and ulcerated form or condition.

In consequence of the severe vomiting and pain at epigastrium which the patient experienced, I was induced to think that the same malignant disease had attacked the stomach; the only other circumstance which could account for these symptoms was sympathy, pressure on the par vagum whilst in the thorax, or enlargement of the spleen, of which latter condition we had evidence from the increased dulness on percussion, and pain over whole of left hypochondrium.

At first, however, I ascribed the pain and vomiting to cancerous degeneration of the stomach, but, as these symptoms soon subsided, I concluded that I had been mistaken on this point.

How far was the diagnosis borne out by the post-mortem inspection? It was found partly correct and partly erroneous. There was no tumour at cardiac region. Again, though I was certain that the disease had proceeded to ulceration, yet I never imagined that such immense excavations existed.

I cannot dismiss the consideration of the case without making a very few observations on the POST-MORTEM APPEARANCES, AND THEIR RELATION TO THE SYMPTOMS OBSERVED DURING LIFE.

The morbid appearances are interesting in many respects. 1. Encephaloid carcinoma is the species which has been most frequently detected in the lungs. In the present instance, the form which the morbid deposit assumed, was that of those varieties of scirrhus denominated by pathologists the chondroid and apinoid. The former term being applied by Racamier to hard crisp tumours, a section of which exhibits in their early stages an unusually shining aspect and bluish-white colour. Many of the solid tumours found in left lung were of this character.

¹ Dr H. M. Hughes, however, states, that he has found the malignant tumours distributed "throughout the greater part of one, OR MORE COMMONLY OF BOTH LUNGS."
—Guy's Hospital Reports, vol. vi. p. 330.

The term apinoid is used by Walshe to denote those scirrhi, a section of which sometimes exhibits a striking resemblance to the cut surface of an unripe pear. "This similitude," observes Walshe, "arises from the dissemination of comparatively opaque, almost buff-coloured spots, though a more translucent ground, of a very pale yellowish-lilac tint. The quantity of more opaque substance gradually increases, and eventually predominates so as to alter the appearance of the surface completely."¹ In the present instance the tumours were seen verging gradually through these various stages or conditions; indeed, I am inclined to say, passing from the one variety to the other, so obviously, that the one appeared to be merely a more advanced condition of the other.

2. Though scirrhus infiltration of the lung is a very uncommon disease, yet it has been much more seldom met with in a state of ulceration.

In the very few cases in which ulceration has been observed, it had not proceeded to the same fearful extent as it did in this instance. Hence the case becomes interesting even in this point of view.

Indeed, I have never read any case in which such large and numerous excavations existed. In the instance recorded by Dr Stokes, he tells us "that a large portion of the lung was burrowed by anfractuous excavations, communicating, on the one hand, with bronchial tubes, and, on the other, terminating in fistulæ, running in various directions to the surface of the lung, where they terminated in superficial cavities, containing air and a whitish purulent fluid, bounded, on the one hand, by the posterior surface of the pulmonary pleura, and, on the other, by the degenerated pulmonary surface."²

In the case narrated by Dr Greene,³ the cavity was of considerable size.

Dr MacLaghlin found, in the case which he has recorded, the whole of the right side of chest filled with a firm unyielding mass, pushing the liver downwards, and adhering firmly to all the neighbouring structures. "Cut into at any part, the knife penetrated innumerable excavations, varying in size from a pea to a walnut. These cavities universally disseminated throughout the lung were for the most part filled with a thick yellow fetid diffuent pus; others contained thin sanious offensive matters; while a third set, and these were fewest in number, were occupied with a whitish pultaceous substance resembling softened brain. The walls of these various cavities were ragged, broken down, and not lined with any membrane."⁴

In Dr Taylor's case, he states that a foreign deposit was copiously diffused throughout the substance nearly of the whole lung;

¹ On the Nature and Treatment of Cancer, p. 24.

² Dublin Journal of Medical Science, vol. xxi. p. 237.

³ Ibid, vol. xxiv. p. 282.

⁴ London Medical Gazette, March 31, 1843.

in most places it was in small masses, of a dirty grey colour, and very much resembling diffused crude tubercle, which it was supposed to be. On a close inspection, the surface of these masses was seen to have a pinkish hue, and was marked with small vascular arborizations. In the lower lobe there was a cavity capable of containing a small walnut."¹

In one of the cases recorded by Dr Hughes, on opening the thoracic cavity, the knife penetrated a large cyst, from which thick purulent matter flowed abundantly. On removing the parts from the chest, "a large uneven and irregular surface of parti-coloured solid substance was now exposed. On inspection of the diseased mass, which evidently formed part of the parietes of the sac, and was situate IN the base of the lung itself. At some parts were seen irregular depressions, filled with semi-solid pus. At others, an uneven surface, of a dark ashen-grey matter, about two lines in thickness, soft pultaceous, and resembling slough, but without any gangrenous odour. At some parts exposed portions of red hardened pulmonary tissue, resembling old common pneumonia; and at others, masses as large as walnuts, of a firm, yellowish, semi-transparent substance, containing a few opaque lines, and presenting the general appearance of gum cancer."²

Though in all these instances, as well as in the other cases published, extensive disease and cavities existed, yet in none did either the ulceration or infiltration proceed to the same extent as in the one which I have read to-night. Not only had we one lobe of the left lung almost entirely excavated, and the other portions infiltrated with numerous tumours of various dimensions, and smaller cavities, but in the right lung we had also extensive ulceration and infiltration both of the upper and middle lobes; whilst the lower one was invaded by the disease, in an incipient form. I am therefore led to consider the case in some respects unique.

3. The extensive effusion of air beneath the pleura pulmonalis, and the dissection of this membrane from the right lung, are circumstances worthy of notice. In one of the cases recorded by Dr Stokes, this dissection of the pleura from the lung extended over almost the lower two-thirds of the organ. In the present instance, the separation was almost as extensive. The pleura over the superior lobe and greater portion of the middle one, was completely dissected from the pulmonary substance; indeed, the latter may

¹ Lancet, March 26, 1842.

² Guy's Hospital Reports, vol. vi. p. 344. Dr Hughes, in the paper from which the above quotation is taken, states that the most common form of cancerous degeneration of the lungs, he has found to be that in which rounded masses, varying in size from small marbles to small oranges, white, pink, or purplish in colour, and solid and semi-transparent, or friable and opaque, according to the age or character of the affection, are found distributed throughout the greater part of one or more, commonly of both lungs. Many cases of this kind he affirms have occurred in Guy's Hospital during the last 12 or 14 years. He seems to view these tumours as secondary, inasmuch as cancerous deposits were found in other organs of the body.

be said to have been obliterated; any remains which were seen consisted of a dark-coloured pulpy mass. The pleura was merely adhering to the walls of several of the tumours and cavities, the interspaces between which were filled with air; a free communication existed between these pseudo air cells; by placing the finger on any of them, the air passed freely into and distended others, so that if it had not been on account of the attachments of the pleura to the cancerous deposits, it would have presented an appearance similar to that described by Dr Stokes.

4. There is another point to which I would direct attention, namely, the circumstance of a number of the foreign bodies having a somewhat tubercular aspect. But their only resemblance to tubercle consisted in their contents being of a thick cheesy consistence, of a buff-colour, and feeling unctuous, granular, and friable, when rubbed between the fingers.

It must be recollected that all these rather equivocal bodies had the same *firm, white-coloured walls, the scalpel rasping as it cut through them*. The few light-coloured purulent collections seen immediately beneath the pleura, causing it to project like a nipple, were probably of the same character as the sub-pleural collections mentioned by Dr Stokes, and quoted in a former part of this paper.

I am not inclined to view any of these tumours to have been of a truly tubercular nature. In the *first* place, it is the opinion of some of our best pathologists that cancer and tubercle never co-exist in the same organ, and very rarely, if ever, in the same person. *Secondly*, the deposits now under consideration had no real resemblance to tubercle, except their softness, their friable consistence, and grey buff-colour. But these are characters which belong to certain stages of cancer, as well as to tubercle. In confirmation of this, I appeal to every writer on the subject. *Thirdly*, the walls of these bodies were perfectly cartilaginous, quite tough, and of a pearly hue,—a section having a distinct striated appearance,—characters very different indeed from those of tubercular deposits, in any stage of development. *Fourthly*, their size and non-coalescence were farther distinguishing marks. Tubercles of the size and consistence of the tumours in question, have never been found to exist *in the lungs*, without running together, and becoming ulcerated; but in this instance the ulcerated, as well as the solid tumours, though lying in close contact, yet were quite distinct and non-adherent to each other. From these considerations, I am inclined to view them as merely softened conditions of the crisp, pearly and apinoid scirrhi, with which they were surrounded on every side.

5. The post-mortem appearances will, I think, sufficiently explain many of the symptoms. We cannot be at any loss to account for the severe cough, dyspnœa, and profuse expectoration.

The dulness on percussion over whole of left side is readily ex-

plained, from the large amount of deposition—the collapsed condition of the lung and the effused lymph. The hardened exterior of the large excavation which existed at apex of this lung, the false membrane, and the weakness of the voice,¹ will explain why pectoriloquy was not so distinctly audible as we would have expected to find over such a large cavity. The dulness on percussion, and the total want of respiratory murmur over lower part of left lung (the only portion that could be called healthy, and which ought to have communicated a vesicular murmur, and a clear sound on percussion), are easily explained by the collapsed and retracted state of the lower lobe. It was quite impossible that the sound of the air passing through its cells could reach the ear, placed on the anterior surface of the chest. The projection of ribs over heart must have been owing to original conformation.

6. With regard to right side of chest, matters readily admit of explanation, whilst, on the one hand, the emphysematous condition that existed would prevent dulness, and even retraction; on the other, the solid nature of the morbid deposits would prevent the tympanitic clearness that usually attends emphysema. Thus as it were, the two conditions so balanced each other as to keep the resonance on percussion near the normal standard.

The relation of the other morbid changes to the symptoms must appear so obvious, that further comment would be superfluous.

7. With regard to the treatment, it was wholly palliative, consisting principally of alteratives, anodynes, and rubefacients. He derived most benefit from large doses of solution of mur. morphia. Counter irritants to the chest and epigastrium gave temporary relief to pains. Acetate of lead and opium were very useful in checking the hemorrhage and discharges from the bowels.



ARTICLE III.—*Contributions to Pathology and Rational Medicine.*

By J. HUGHES BENNETT, M.D., F.R.S.E., Lecturer on the Practice of Physic, and Pathologist to the Royal Infirmary, &c.

No. 2.—*On the Elementary Forms of Disease.*

A KNOWLEDGE of the elementary forms of disease is not only essential to the proper comprehension of morbid processes, but from the necessity of employing certain terms to convey our meaning to others, no kind of description can be entered into without alluding to them. It is, above all things, then, necessary that these terms should have fixed and definite ideas attached to them, and that we should avoid, as much as possible, the use of expressions

¹ In cases of phthisis shortly before death, from the weakness of voice which often occurs, I have been unable to hear pectoriloquy, though it was most distinct at an earlier period of the disease.

the meanings of which are not always understood in a like manner by different persons.

In 1838, Dr Carswell completed a work entitled, "Illustrations of the Elementary Forms of Disease." That work is universally acknowledged to have represented in an admirable manner the state of morbid anatomy at the period of its publication. The elementary forms of disease therein noticed are Inflammation, Analogous Tissues, Atrophy, Hypertrophy, Pus, Mortification, Hemorrhage, Softening, Melanoma, Carcinoma, and Tubercle. We now know that many of these so called elementary forms are very complicated processes; and although they are in general use to express morbid phenomena, the greatest differences of opinion prevail as to their nature, and even meaning. Fortunately, the progress of science has enabled us to arrive at other elementary forms, which are not only more simple in themselves, but bear an intimate relation to general or physiological anatomy.

With a view of avoiding error and confusion in future inquiries, it is much to be desired that objects should only be described according to their physical properties. This applies in an especial manner to minute bodies seen under a microscope, which ought only to be distinguished by their size, colour, shape, edge or border, transparency, surface, contents, and the effects produced upon them by re-agents. By paying attention to these points, we soon learn to distinguish between minute structures; whereas hastily concluding that a certain corpuscle is a pus or cancer cell, simply because it was found in what we considered to be pus or cancer, can only lead to numerous mistakes.

Proceeding, then, on our knowledge of the differences in the physical characters of morbid products, we may divide their elementary forms into seven kinds, viz.:—1. Molecules and Granules; 2. Cells or Corpuscles; 3. Filaments and Fibres; 4. Black Pigmentary Matter; 5. Mineral Matter; 6. Parasitic Vegetations; and 7. Parasitic Animals.

1. *Molecules and Granules* (Granular Element).

Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



[All the figures, with one exception, are represented as seen under a magnifying power of 220 diameters linear.]

Figs. 1. to 6. APPEARANCES OF MOLECULAR AND GRANULAR MATTER. Fig. 1. Molecular matter in tubercular deposit. Fig. 2. Granular matter in a fibrinous tumour. Fig. 3. Granular matter in a portion of hepatized lung. Fig. 4. Granular matter in the gelatinous contents of an ovarian tumour. Fig. 5. Granular matter on a sloughing ulcer. Fig. 6. Granules of milk.

We apply the term *molecule* to that exceedingly minute body in which we can discover no determinate external circle and internal centre (fig. 1). What appears to be molecular will much depend upon the magnifying power employed, for molecules, at 220 diameters, become granules at 500.

Granules are minute bodies, varying greatly in size, and are distinguished by possessing a distinct external shadowed ring or margin, the external edge of which is abrupt. When transparent they refract light, so that they present a bright or dark centre, according to the focal point in which they are viewed. They may be so minute as scarcely to be separated from molecules, or so large as to receive the name of globules, as in the milk (fig. 6). They are generally composed of various kinds of fat (stearine or elaine), and disappear on the addition of strong potash or ether. They accompany almost every elementary form of disease, and may be seen floating loose amongst various corpuscles, or inclosed within them in various proportions.

Molecules and granules are found in numerous fluids, textures, and morbid products, and a just appreciation of their nature is very important to the success of pathological inquiries. Are they cells in the process of evolution, or the results of the disintegration of corpuscles and other tissues? They may undoubtedly be both. The granules of evolution, however, are generally round and distinct, though of various sizes (figs. 2 and 4), and are often mixed with cells, which vary in magnitude or development, but have a regular edge.—The granules of disintegration, on the other hand, are often angular, and mixed with broken up or irregular cells, and the shreds or debris of various tissues and corpuscles. (figs. 3 and 5.)

The amount of granular matter in a fluid at different times is important. Thus some kinds of pus are much more granular than others. A purulent-looking fluid may be entirely composed of granules, and not contain one pus corpuscle. The blood which, in a healthy state, contains few granules, may, under certain morbid conditions, present them in great abundance, and so on.

2. Cells or Corpuscles (Cellular or Vesicular Element).¹

Fig. 7.

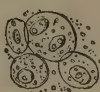
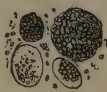
Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.



Figs. 7 to 12. VARIOUS KINDS OF CELLS OR CORPUSCLES. Fig. 7. Corpuscles in pus. One shows the granular nucleus after the addition of acetic acid. Fig. 8. Cor-

¹The circumstance of the term cellular having been applied by descriptive anatomists to the filamentous or areolar tissue, has induced much misconception, and hence why vesicular element might perhaps be adopted to express what is here meant.

puscles in recent lymph from the pleura (*pyoid* corpuscles of Lebert). *Fig. 9.* Corpuscles in inflammatory softening of brain. *Fig. 10.* Corpuscles in soft cancer of the uterus. *Fig. 11.* Corpuscles in soft cancer of the bladder. *Fig. 12.* Corpuscles in tubercle.

By cells or corpuscles we understand bodies which are composed of an external wall or vesicle, enclosing various kinds of contents. These are often granular only (figs. 8, 9, and 12); at other times they consist of one or more internal vesicles, which are then called *nuclei* (figs. 10 and 11), containing granules or *nucleoli*.

A proper examination of these bodies can only be made by examining them first without the addition of any other substance, and then as they are affected by re-agents. As the anatomist with his knife separates the different layers of the parts he is dissecting, so the histologist, by chemical agents, is enabled to dissolve some and leave others. Acetic acid, for instance, has the valuable property of rendering many albuminous membranes more transparent, and of entirely dissolving others. When added to pus corpuscles, we find the external cell wall rendered very transparent, whilst the nucleus which was formerly obscured is now rendered clearly visible (fig. 7). Water also changes the form and aspect of many corpuscles, usually causing them to swell out, from the endosmosis which takes place. Syrup, on the contrary, causes many cells to shrivel up or become smaller by inducing exosmosis. Some corpuscles are not affected by the agents which act on others—a circumstance which enables us to distinguish between different, or to determine the age of similar cells.

A glance at the different figures given above, all of which are drawn as seen under the same magnifying power, must convince any one, that corpuscles possess distinct differences in their physical properties of size, shape, form, external edge, contents, &c. These differences are capable of being easily detected, and serve to distinguish various morbid products. The corpuscles of pus, cancer, and tubercle, may in this way be recognised under circumstances, in which, to the naked eye, these products are undistinguishable. Moreover, their presence enables us to pronounce with certainty on the nature of morbid deposits and growths, when the unaided senses to this end have frequently been proved to be either of little service, or to lead to erroneous conclusions.

The chemical composition of individual corpuscles vary according to their age, nature, and contents. As a general rule, the external cell wall is composed of albumen, and the internal granules of some kind of fat. This is easily demonstrated by the action of acetic acid, which dissolves the former, and of ether or alkalies, which remove the latter. Not unfrequently acetic acid, which renders the cell wall transparent, causes the nucleus to appear more distinct. Some cells are very slightly affected by acetic acid (figs. 2 and 3), a circumstance which seems to distinguish them from those which are. The relative proportions of the fatty and

albuminous materials, in different cells, vary infinitely. Some contain few, whilst others are loaded with granules (figs. 8, 9, and 12).

Corpuscles form the constituents of pus, inflammatory softening, cancer, and tubercle. They are often mingled with granules, and the other elements to be noticed, but unlike these, give peculiar characters to the structure examined; and hence, for diagnostic and practical purposes, are the most important of all the elementary forms of disease. The modern theory of Cytogenesis sufficiently explains their mode of formation; a theory now so well understood, as to preclude the necessity of entering into its consideration.

3. *Filaments and Fibres.*—(Fibrous Element.)

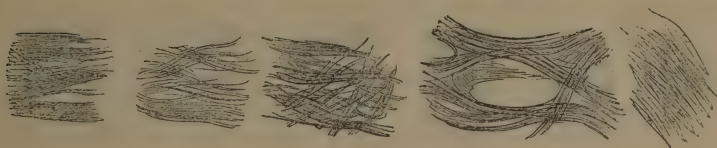
Fig. 13.

Fig. 14.

Fig. 15.

Fig. 16.

Fig. 17.



Figs. 13 to 17. VARIOUS KINDS OF FILAMENTS AND FIBRES. *Fig. 13.* Filaments in recent lymph. *Fig. 14.* Filaments in chronic lymph. *Fig. 15.* Filaments in a fibrous tumour. *Fig. 16.* Filaments in colloid tissue. *Fig. 17.* Filaments in a fibro-plastic tumour, composed of fusiform cells.

Filaments and fibres present a thread-like structure, and are composed of a series of molecules running in lines (fig. 1), or of minute solid cylinders, having, when in focus, distinct dark borders, with a transparent centre (figs. 14, 15, and 16).¹ These filaments and fibres often run parallel (figs. 13 and 14), but not unfrequently they cross or interlace with each other (fig. 15), are disposed in bundles, or so as to leave intervening cells or spaces (fig. 16). They vary in thickness, being sometimes so fine and delicate, as to be scarcely visible (fig. 13), and at others resembling bands of determinate breadth and thickness (fig. 16).

Filaments and fibres are found in a variety of morbid products, but more especially in lymph exuded on serous membranes, in fibrous, cancerous, and various other forms of tumour. As a general rule, they are finer and more delicate in recent exudations, and larger and more distinct in chronic productions. They are often mingled in various proportions, with granules and corpuscles; and according to their amount and density, give firmness and solidity to morbid growths.

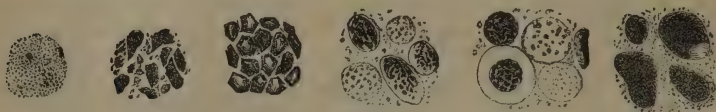
The doctrine of Cytogenesis led to the conclusion, that all filamentous structure was the result of cellular development. We

¹ Our wood-cutter has not succeeded in giving the natural rounded character to these filaments.

now know this to be erroneous. In certain diseases the liquor sanguinis of blood drawn from the arm, may be seen to coagulate at once in the form of filaments. Lebert has recently stated, that the fibrous tissue of chronic lymph is produced from the condensation of the elementary filaments, without the agency of cell development. On the other hand, there can be no doubt that some kinds of fibrous tissue are produced by the elongation and splitting up of cells; for instance, the granulations on the surface of a sore, and certain fibrinous tumours, in which variously elongated and puriform cells may easily be detected (fig. 9).

4. *Black Pigmentary Matter*.—(Pigmentary Element.)

Fig. 18. Fig. 19. Fig. 20. Fig. 21. Fig. 22. Fig. 23.



Figs. 18 to 23. BLACK PIGMENTARY MATTER IN VARIOUS FORMS. *Fig. 18.* Granular pigmentary matter in a corpus luteum. *Fig. 19.* Pigmentary masses in an intestinal aggregate gland. *Fig. 20.* Many sided cells, containing pigmentary matter on the surface of the pericardium. *Fig. 21.* Epithelial cells, containing pigmentary matter, in the black sputum of the collier. *Fig. 22.* Corpuscles containing pigmentary matter, in a melanotic cancer of the cheek. *Fig. 23.* Corpuscles in melanotic tumours surrounding the anus of a horse.

Black pigmentary matter is composed of exceedingly minute molecules, perfectly black and opaque (fig. 18). They are often congregated together in masses of various sizes and shapes (fig. 2). At other times inclosed within distinct cell walls, which also vary in size and shape (figs. 20, 21, 22, and 23).

Black pigment is frequently found in otherwise healthy lungs, within the epithelial cells lining the bronchi. The black spit of the collier contains them in abundance (fig. 21). Lymph, tubercle, cancer, and old extravasations of blood are frequently tinged black, with pigmentary matter. In soft cancer it is often found within the corpuscles, constituting the melanotic cancer of Cruveilhier (fig. 22). In melanotic tumours of the horse it occurs within distinct cells, rendering them granular and opaque, except where sometimes a perfectly transparent nucleus may be observed (fig. 23).

Black pigmentary matter, although composed of similar structural elements, is constituted of at least two distinct chemical principles. Thus, in the sputum and lungs of the miner, it is unaltered by boiling nitric acid, and has been shown to consist of free carbon. In lymph, cancer, and other morbid products, the colour is lost in boiling nitric acid, and it is probable (although we are not aware that this has been proved by analysis) that in such cases the colour depends on sulphuret of iron, derived from the blood.

5. *Earthy Matter*.—(Mineral or Earthy Element.)

Fig. 24. Fig. 25. Fig. 26. Fig. 27. Fig. 28.



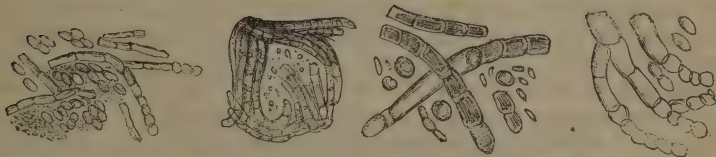
Figs. 24 to 28. VARIOUS KINDS OF EARTHY MATTER. *Fig. 24.* Earthy granules in cretaceous matter from the Fallopian tube. *Fig. 25.* Earthy masses in cretaceous matter from the kidney. *Fig. 26.* Earthy masses in cretaceous concretions from the lung. *Fig. 27.* Earthy masses in tubercular deposits from the vertebræ. *Fig. 28.* Crystalline earthy matter—Triple phosphate.

Earthy matter often occurs in the form of irregularly shaped granules (fig. 24), or masses (figs. 25, 26, and 27). They may generally be distinguished by their deep dark border, and highly refracting surface, and are usually dissolved with effervescence, on the addition of muriatic acid. It also occurs in the crystalline form, when the kind of crystal produced, in many cases, enables us at once to detect its composition, independently of chemical reagents.

Earthy matters are found in many morbid products, especially in chronic exudations on serous surfaces, in chronic tubercle, and cancers. They constitute the characteristic constituent of pulmonary cretaceous and calcareous concretions, atheromatous deposits in the coats of arteries, calculi, and various so-called ossific deposits. In the crystalline form they are most commonly met with in the urine and fæces, or on the surface of mucous membranes.

6. *Parasitic Vegetations*.—(Confervoid Element.)

Fig. 29. Fig. 30. Fig. 31. Fig. 32.



Figs. 29 to 32. VARIOUS KINDS OF PARASITIC VEGETATIONS. *Fig. 29.* Branches and sporules in the crusts of *Tinea Favosa*. *Fig. 30.* Branches and sporules in a mass passed *per anum*. *Fig. 31.* The same magnified 500 diameters linear. *Fig. 32.* *Penicillium glaucum* of Link found in tubercular caverns, and on various putrid substances.

Parasitic vegetations are generally composed of elongated cells, so disposed as to form jointed tubes, more or less long. These tubes are frequently associated with, and sometimes are seen to terminate in, round or oval transparent bodies, which have been considered the sporules of the plant. The tubes sometimes contain granules, are often branched, and form an inextricable mesh-

work. The sporules are either isolated, grouped together in masses, or form beaded chaplets, and sometimes contain a nucleus. Occasionally, the sporules constitute the only signs of vegetation.

Parasitic vegetations are, for the most part, found growing in morbid productions on the surface of the skin, mucous membranes, or open cavities. They constitute the characteristic element of *porrigo favosa* (fig. 29), and some other diseases of the skin. On the mucous membranes, especially of the intestines, certain lurking masses of lymph may be found to be similarly constituted (figs. 30 and 31), and in tubercular caverns, and sputum long retained, the *penicillium glaucum* of Link may often be observed, (fig. 32).

7. *Parasitic Animals.*

This elementary form of disease does not permit of a condensed general description in this place; nor is it necessary to give delineations of their numerous and varied forms. We shall defer, therefore, what we have to say on this subject to another opportunity.

The various elementary forms of disease now indicated, and their varieties, mingled together in different proportions, constitute those numerous appearances observed in morbid products. It is seldom that they occur isolated. The granular form is almost always more or less mingled with the others. It constitutes the basis of morbid as it does of healthy growths. Corpuscles and fibres frequently occur together. It is the different proportions of these two elements existing in cancer, which cause the apparent varieties of that disease. Soft cancer is principally formed of corpuscles; hard cancer, of fibres. Pigmentary and earthy matters are common to many normal tissues, and may be found at times amongst all the products of disease. Vegetable parasites occurring in the human economy is a discovery of recent date; but observation has shown them to be the elementary and characteristic form of many morbid alterations in texture. Animal parasites have been long known.

In concluding this general sketch of the elementary forms of disease, it may be necessary to observe, that many morbid processes consist simply of an excessive growth or hypertrophy or healthy structure. The heart, when much enlarged, presents the same minute structure as when of normal size. A fatty tumour is only composed of an increased number of the same cells as are seen in ordinary fat. Again, many appearances which to the naked eye seem peculiar, and quite different from the healthy structure, are, in point of fact, only so many hypertrophies. Thus warty excrescences, condylomata, corns, the scales of ichthyosis, &c. are composed of condensed epidermic cells; enchondroma consists of cartilage; fibrous tumours are identical in structure with the ordinary fibrous tissue of the body, and so on. It may sometimes also be observed,

that although no new structures in kind are developed, the normal elements have undergone several modifications or changes, which alter their natural appearance. Thus, the blood, instead of presenting the well known characters of that fluid, may exhibit its globules more or less broken down, angular, or otherwise altered in shape. Epithelial cells may become enlarged by endosmosis, and present very different appearances from those which characterise them in a state of health. The ultimate cells of the liver or kidney may be unusually granular, or loaded with fat, &c., &c. Hence those pathologists who divided morbid structure into homologous and heterologous (Laennec)—homœomorphous and heteromorphous (Lebert)—entertained correct views regarding the proper basis on which such divisions should be made.

These facts, independently of other considerations, must be sufficient to convince any reasoning mind, that no one can hope to familiarize himself with the elementary forms of disease, who is not thoroughly grounded in the knowledge of physiological histology, or the structure of the animal tissues in a state of health. This must be a necessary introduction to the study of morbid anatomy and pathology.

ARTICLE IV.—*Tables of the Weights of some of the Organs of the Human Body.* By T. B. PEACOCK, M.D., Licentiate of the Royal College of Physicians, Physician to the Royal Free Hospital, and Royal General Dispensary, London.

AN extended series of "weights of some of the most important organs of the human body," together with elaborate tables compiled from them, were published, by Professor Reid, in this Journal for April 1843. The data now recorded form a continuation of Professor Reid's observations, and were collected by myself at the Royal Infirmary of Edinburgh, during the years 1842 and 1843. Though fully conscious of their imperfection, both as regards number and completeness, I am induced to publish them from the belief that they possess considerable value in connexion with the series recorded by Professor Reid.

To the 195 observations, including 105 weights of the encephalon, contained in the present communication, I have appended various tables compiled, at the suggestion of Professor Reid, from his previous data, together with those now published, so that the tables which will be given in the second part are based on 356 weights of the encephalon; a series which, though large, is still very defective in the weights of the brain in young persons, owing, as remarked by Professor Reid, to the small number of children admitted into the Royal Infirmary. The method of ascertaining the weight of the encephalon, and of its several portions, adopted in the collection of the present observations, was similar to that pursued by Professor Reid. The weight employed was avoirdupois.

TABLE I.—Weights of Healthy Organs.
The letter *D* is inserted when the organs are diseased.

MALES.

No.	Age.	Occupation.	Wgt. of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebrum with Pons V. Medulla Oblongata.	Fluid in the Ventracles.	Fluid beneath the Arachnoid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
1	Yrs. mo.		lbs. oz. dr.	oz. dr.	oz. dr.	oz. dr.	...	...	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
2	11 11	...	34 38 0	41 11 1/2	...	...	...	slight	...	...	...	...	...
3	2 6	...	...	41 11 1/2	...	...	...	...	...	...	...	...	...
4	3 6	...	...	44 1 1/4	36 8	3 1/2	...	...	...	...	...	...	...	Marsmus, 6 weeks.
5	6 0	...	...	39 12 35	0	4 12	...	...	...	...	...	...	...	Pneumonia after measles, 3 months.
6	11 0	...	42 55 0	...	...	...	3j	...	8 8	22 0	...	3 8	...	Cereb. 43 113, Pons and Med. 8 3/3.
7	14 0	...	...	...	...	...	...	...	0 0	...	...	D.	...	Pertussis, convulsions. Cerebellum 43 435, Pons and Med. 9 1/3.
8	16 0	...	...	...	...	...	...	...	7 0	...	...	...	...	Fever, gangrene of lungs.
9	16 0	...	47	...	...	...	...	...	5 8	...	...	...	...	Fever, 18th day; lungs congested.
10	17 0	Sailor	...	50 0	43 8	6 8	5ij	...	8 8	59 0	7 8	4 0	...	Amputation of great toe for caries, diseased kidneys.
11	19 0	...	...	40 4	34 0	6 4	3j	...	11 0	...	14 0	6 8	6 0	Phthisis and intercurrent pneumonia.
12	...	Average...	...	45 2	38 12	6 6	...	...	8 0	...	10 12	5 4	5 4	Phthisis.
13	23 0	Mason	108	54 0	...	...	3ij	...	8 8	47 0	6 0	4 8	5 0	Fever, 19th day.
14	27 0	...	...	56 8	...	...	...	...	...	...	...	...	...	Fever.
15	26 0	Labourer	...	38 0	...	...	3iij	...	D.	D.	...	5 0	5 0	Diseased heart and liver (713); bronchitis and emphysema.
16	26 0	...	...	...	...	...	...	slight	13 0	...	2 8	6 0	6 0	Delirium tremens; slight opacity of aortic and mitral valves.
17	23 0	Tavern waiter	130	46 0	...	...	...	...	...	...	...	...	...	Fever, 12th day; lungs congested.
18	25 0	Labourer	125	51 0	...	...	3j	slight	10 8	...	...	4 8	8 12	Phthisis, 14th day.
19	24 0	Brassfounder	...	57 0	...	...	3iijss	...	10 0	...	11 0	9 0	9 0	Fever, 12th day; lungs congested.
20	23 0	Book-keeper	97	52 0	...	...	3 ss	...	7 8	...	4 8	D.	D.	Phthisis, 3 months; gran. dis. of kid.

TABLE I.—(continued.)

MALES.

No.	Age.	Occupation.	Wgt of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Varoli and Medulla Oblongata.	Fluid beneath the Arachnoid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
47	38 0	Juggler	lbs. 79 50 0	oz. dr. 50 0	oz. dr. ...	oz. dr. 3jss	...	oz. dr. D.	oz. dr. ...	oz. dr. ...	oz. dr. D.	oz. dr. D.	Diseased heart, aorta, and kidneys; congestion of lungs.
48	37 0	Sawyer	112 45 0	0	...	3ij	slight	8 0	...	...	...	...	Fever, 20th day.
49	33 0	Clerk	... 55 0	0	...	3jss	slight	10 0	...	...	...	...	Delirium tremens; double pneumonia.
50	33 0	Flesher	145 46 8	8	...	3jss	consid.	13 0	D.	...	7 8	7 8	Fever; pneumonia; old dis. of liver.
51	35 0	Fireman of steam-boat	... 58 8	8	...	...	...	12 8	...	...	...	...	Fever.
52	38 0	...	100 51 12	45 12	6 0	3jss	slight	10 12	62 8	...	6 12	5 12	Fever; bronchitis; 17th day.
53	32 0	Mason	107 49 12	42 12	7 0	...	...	12 8	...	8 8	5 8	5 8	Phthisis, 10 months.
54	33 0	Watchmaker	... 40 8	8	...	...	...	8 8	...	...	4 12	4 4	Erysipelas; delirium tremens; congestion of lungs.
55	35 0	...	... 61 0	0	...	...	...	...	...	...	...	...	Compound fracture of humerus and leg; purulent deposits; 3 weeks.
56	30 0	...	... 44 8	38 8	6 0	...	slight	13 8	...	...	5 8	5 12	Bronchitis; emphys. pulm.
57	36 0	Sailor	... 46 0	40 4	5 12	3j	slight	12 0	...	...	...	...	Fever, 13th day; lungs congested.
58	32 0	...	... 48 0	41 4	6 12	...	...	9 0	56 0	D.	...	...	Icterus, from arrest of secretion.
59	32 0	Policeman	111 52 8	46 8	6 0	3ij	...	11 0	...	...	D.	D.	Diseased kidneys.
60	38 0	Printer	... 62 0	54 8	7 8	...	...	11 8	...	...	...	...	Delirium tremens.
61	32 0	Carpenter	146 59 8	52 4	7 4	3vij	...	D.	...	...	...	...	Valvular disease of heart.
62	34 0	...	171 56 12	50 0	6 12	...	...	14 8	...	2 8	5 4	5 0	Fever; lungs much congested.
63	30 0	Sailor	157 48 0	0	...	...	...	D.	D.	5 0	7 0	5 0	Intercurrent pneumonia, heart (143 45), and liver (703) diseased.
64	33 0	Typefounder	... 45 0	0	...	3jss	...	...	...	...	...	...	Fever, 9th day; chr. dis. of knee.
65	38 0	Bill sticker	107 ...	...	...	...	...	...	...	...	5 0	6 8	Pneumonia.
66	34 0	...	115 ...	...	...	...	...	12 0	...	...	6 8	7 8	Fever; hypertrophy of heart (163).

	67	32	0	Brewer Cabinetmaker	... 152 100 ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	11 8 8	8	...	...	5 0 	5 	Pleurisy. Delirium tremens. Phthisis.
	68	37	0	Cabinetmaker	152	...	...	...	...	14	8	...	...	...	...	Do.
	69	38	0	"	...	...	...	...	...	11	8	...	...	...	...	Do.
	70	35	0	"	100	...	...	...	...	7	8	...	...	...	...	Do.
	71	30	0	"	...	...	...	...	...	12	8	...	...	...	...	Pneumonia and diseased kidneys.
	72	39	0	Commission agent	...	...	...	...	...	11	0	...	...	...	...	Phthisis.
	73	35	0	Tailor	87	...	...	...	...	7	8	55	8	D.	5	Do.
	74	37	0	Tanner	84	...	...	...	...	9	8	50	8	3	8	Do.
	75	36	0	"	99	...	...	...	...	6	12	50	8	6	4	Do.
	76	39	0	Average...	...	51	2	45	12	10	4	56	2	6	0	...
	77	44	0	Labourer	114	54	0	...	...	13	8	60	0	8	12	Fever, 10th day.
	78	44	0	Writer's clk.	99	52	0	...	...	sight	...	...	...	5	4	Phthisis, 6 weeks; heart 153 43.
	79	47	0	Sailor	90	52	0	...	...	...	10	0	...	...	...	Compound fracture of forearm and arm ; fracture of ribs ; pneumonia, 1 month.
	80	42	0	Weaver	131	42	12	...	...	sight	d.	...	...	...	...	Ac. bronchitis supervening on chr.; heart 143 63.
	81	40	0	"	...	52	0	45	8	...	11	12	...	9	12	Fever, 13th day.
	82	42	0	Tailor	...	62	12	...	...	...	13	12	...	6	8	Fever, 18th day; lungs congested.
	83	40	0	"	...	47	12	41	10	...	d.	...	...	7	4	Valv. disease of heart; bronchitis.
	84	44	0	"	127	56	0	49	0	sight	12	12	60	5	8	Fever; lungs congested; diseased kidneys.
	85	40	0	Labourer	130	49	4	43	0	...	11	8	...	...	...	Delirium tremens.
	86	40	0	Painter	...	41	0	...	...	...	10	8	53	5	4	Phthisis, 6 months.
	87	40	0	Labourer	131	...	...	...	...	...	d.	52	0	D.	6	Fever and jaundice; heart 153; kidn-neys granular.
	88	42	0	"	115	...	...	...	...	11	12	56	0	4	2	Pneumonia.
	89	45	0	Shoemaker	133	...	...	...	...	13	8	43	0	8	0	Fever.
	90	45	0	Silversmith	...	...	...	...	...	11	8	...	...	6	0	Do.
	91	46	0	"	129	...	...	...	...	10	0	...	...	...	...	Phthisis.
	92	42	0	Hatter	114	...	...	...	...	8	8	...	...	...	...	Do.
	93	45	0	Toll-keeper	79	...	...	...	...	9	8	...	...	...	...	Do.
	94	41	0	Mason	80	...	...	...	...	9	8	...	...	...	...	Do.

TABLE I.—(continued.)

MALES.

No.	Age.	Occupation.	Wgt. of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Va. and Medulla Oblongata.	Fluid in the Ventracles.	Fluid beneath the Arachnoid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
	Yrs. mo.		lbs.	oz. dr.	oz. dr.	oz. dr.	...	...	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
95	40 0	...	...	...	...	...	...	...	11 8	48 0	D.	7 4	8 0	Disease of liver and spleen.
96	44 0	...	...	...	...	...	...	...	D.	...	12 0	...	...	Chr. bronchitis and emphys. pulm.; heart 17½ 43; pericarditis.
97	45 0	...	149	...	...	...	...	...	D.	...	...	...	...	Pneumonia; heart 17½ 43.
...	...	Average...	...	50 15½	44 12	6 7½	...	...	11 4½	53 2½	7 8	6 10½	6 14½	...
98	40 0	Negro from Congo	...	46 2½	40 2¼	6 0¼	...	...	12 0½	65 0	11 0	8 0	8 0	Fever with bronchitis.
99	51 0	Tailor	121	54 0	...	...	5ij	...	13 12	...	...	...	...	Fever, 9th day; lungs congested.
100	59 0	Mason	...	51 0	...	...	...	...	D.	64 0	6 8	6 8	6 8	Disease of hrt. and aorta; pneumonia.
101	56 0	...	...	44 8	39 0	5 8	5ij	...	11 8	66 8	2 12	6 0	5 6	Cut throat, 8th day; pneumonia.
102	54 0	Baker	...	50 8	44 8	6 0	5jss	consid.	9 0	...	5 12	4 3	3 8	Pleurisy and peritonitis; dis. aorta.
103	54 0	Fletcher	146	46 8	41 0	5 8	5ij	slight	11 8	...	...	D.	D.	Stricture of ureth. and dis. of kidneys.
104	52 0	Soldier, latterly a tailor	...	...	...	...	...	...	12 0	...	...	...	...	Phthisis.
105	51 0	...	...	...	...	...	...	...	9 12	59 8	3 0	5 8	6 8	Pleurisy.
106	52 0	...	...	...	...	...	...	...	10 8	36 8	D.	...	...	Chr. bronchitis and emphys. pulm.
107	53 0	...	115	...	...	...	...	...	10 8	51 0	5 8	5 8	3 8	...
108	56 0	...	84	...	...	...	...	...	7 0	...	...	...	...	Phthisis; intercurrent pneumonia.
109	53 0	...	108	...	...	...	...	...	5 0	D.	...	D.	D.	Disease of liver and kidneys.
110	57 0	...	...	...	...	...	...	...	13 0	...	...	...	...	Cut throat; pneumonia.
111	55 0	...	80	...	...	...	...	...	8 8	...	...	...	...	Secondary syphilis.
112	57 0	...	...	...	...	...	...	...	D.	...	...	...	...	Phthisis; bronchitis; diseased heart and aorta (heart 16½).

113	55	0	Labourer	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Phthisis.
114	50	0	Sail. weav.	95	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Pleuro-pneumonia.
...	...	...	Average...	...	49	4 $\frac{1}{2}$	41	8	5	10 $\frac{2}{3}$	...	...	...	...	...	...	...	...	...	...	...	...	...
115	50	0	Lithuanian	...	46	8	41	0	5	8	...	...	...	...	...	...	...	...	...	...	...	...	Chr pleurisy; pneumonia. Cerebel- lum 4 $\frac{3}{8}$ 8 $\frac{3}{8}$; Pons and med. 1 $\frac{3}{8}$.
116	60	0	Mason	129	46	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Phthisis, 9 months; diseased aorta.
117	65	0	Hawker	...	44	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Fever, 20th day.
118	60	0	Slater	102	49	8	...	...	...	...	3ij	...	...	...	...	...	...	...	...	...	...	...	Pneum.; ulcer of stom.; hydrothorax.
119	60	0	...	...	53	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ulceration of intestines, 4 weeks.
120	62	0	Baker	96	47	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Phthisis, 8 months.
121	65	0	...	137	50	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Fever; hemorrhage from bowels.
122	66	0	...	...	49	8	44	0	5	8	...	...	...	...	...	...	...	...	...	...	...	...	Fever.
123	60	0	...	88	42	0	37	0	5	0	...	...	...	...	...	...	...	...	...	...	...	...	Fever and jaundice.
124	67	0	Servant	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bronchitis; emphys. pulm.
125	60	0	Blacksmith	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Phthisis.
126	60	0	Coachman	101	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Pleurisy; pneumonia; fractd. ribs.
...	...	...	Average...	...	47	15 $\frac{1}{2}$	40	8	5	4	...	...	...	...	...	...	...	...	...	...	...	...	...
127	70	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	D.	...	...	...	...	Jaundice from arrest of secretion; diseased kidneys.
128	74	0	Pensioner	144	...	...	...	...	...	...	...	D.	63	8	6	4	5	8	5	8	5	8	Bronchitis; convulsions; obliteration of cerebral arteries; heart 19 $\frac{3}{4}$ 43; disease of aorta.
129	80	0	...	...	52	0	45	8	6	8	3jss	...	14	8	...	...	...	...	...	...	...	...	Fractured ribs: delirium tremens.

TABLE II.—Weights of Healthy Organs.

FEMALES.

No.	Age.	Wgt. of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Varoli and Medulla Oblongata.	Fluid in the Ven-tricles.	Fluid beneath the Arach-noid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
	Yrs. mo.	lbs.	oz. dr.	oz. dr.	oz. dr.			oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
1	1 8	11	30 12 $\frac{1}{2}$	26 14 $\frac{1}{2}$	3 14	...	...	...	...	...	...	...	Strumous pneumonia of 1 month's duration; cerebellum only 3 $\frac{3}{8}$ 85 and 12 gr.; pons and med. 5 $\frac{3}{8}$ 13 gr.
2	2 3	...	35 5 $\frac{1}{2}$	31 1 $\frac{1}{2}$	4 4	...	...	...	...	...	...	...	Pneumonia and diphtherite after measles; cerebellum only 3 $\frac{3}{8}$ 12 $\frac{3}{8}$ 5; pons and medulla 7 $\frac{1}{8}$ 45.
3	3 0	20 41	2 37	2 4 0	4 0	...	...	...	10 4	1 12	1 0	1 0	Fever, fatal on the 6th day; lungs congested.
4	6 0	...	34 8	29 7 5 1	...	...	...	...	...	...	...	...	Phthisis, supervening on pertussis.
5	7 0	32	...	...	...	...	...	3 6	24 0	3 0	3 6	2 0	Dothimententis.
6	8 0	48 37 12	32 12	5 0	5 0	...	...	6 4	31 0	5 0	3 12	3 4	Scarlatina, 6th day.
7	14 0	95	...	...	...	...	...	11 12	...	...	D.	D.	Disease of kidneys.
8	16 0	...	...	...	...	...	...	11 8	...	...	...	...	Bronchitis and emphysema pulmonum.
9	16 0	...	44 8	...	...	...	...	...	...	...	...	...	Fever, 9th day.
10	17 0	96 44 0	...	...	...	...	...	11 0	...	...	6 8	5 8	Fever, 12th day; lungs congested; slight thickening of the folds of mitral valve.
11	17 0	129 46 0	...	...	...	...	...	...	...	...	...	...	Pleurisy and pneumonia; slight pericarditis.
12	17 0	59	...	...	...	...	...	4 8	51 0	3 8	3 8	4 0	Phthisis; necrosis of the tibia.
13	18 0	...	...	...	...	...	...	7 0	...	...	3 8	3 8	Scarlatina.
14	18 0	113 47 8	42 8	5 0	...	...	...	9 8	...	10 8	...	...	Fever, 10th day; lungs much congested.
15	18 0	...	42 8	6 8	...	...	slight	7 15	...	...	...	...	Acute tuberculosis.
16	25 0	66 39 0	...	...	...	...	...	8 0	D.	12 0	D.	D.	Diseased uterus and kidneys; great enlargement of the liver, which weighed 96 $\frac{3}{8}$.
17	28 0	97 46 0	...	...	...	...	...	9 8	46 0	12 0	4 8	4 0	Fever, 12th day; some congestion of the lungs.
18	23 0	85 44 8	...	...	...	...	...	6 12	37 8	...	4 0	4 12	Phthisis, 2 years.
19	25 0	117 43 12	38 0	5 12	5 12	...	...	9 0	65 0	...	7 0	7 12	Variola, with purpura hemorrhagica, 8th day.
20	29 0	...	42 8	37 0	5 8	...	...	9 8	D.	D.	...	...	Icterus; disease of liver (79 $\frac{3}{8}$), and spleen (23 $\frac{3}{8}$).

21	21	0	...	47	8	42	0	5	8	3jss	consid.	D.	D.	...	7	12	7	0	Delirium cum tremore ; diseased liver ; heart loaded with fat.
22	21	0	100	49	0	43	0	6	0	...	...	10	8	11	8	D.	D.	Granular disease of kidneys and pneumonia.
23	24	0	109	44	12	39	0	5	12	...	...	...	...	D.	...	D.	Do.	do. and enlarged spleen (15345).
24	25	0	86	...	...	...	...	...	...	...	...	9	12	...	...	...	...	Gangrene of lungs.
25	24	0	...	...	...	...	...	...	...	...	...	11	0	61	0	5	8	Bronchitis.
26	21	0	86	...	...	...	...	...	...	...	...	5	12	D.	...	4	8	Phthisis ; fatty and congested liver, 91½3.
27	20	0	90	...	...	...	...	...	...	...	...	9	0	...	...	...	...	Phthisis.
28	28	0	...	...	...	...	...	...	...	...	...	7	4	D.	...	D.	D.	Disease of liver and kidneys.
29	21	0	97	...	...	...	...	...	...	...	...	10	0	...	...	...	...	Phthisis.
30	20	0	...	...	...	...	...	...	...	...	...	7	4	...	...	...	...	Variola.
31	22	0	58	...	...	...	...	...	...	...	...	5	8	36	0	...	...	Phthisis.
...	Avr...	44	10	39	12½	5	11½	8	7¼	41	0	5	8½	...	Granular disease of kidneys ; coma ; slight effusion of blood in membranes of brain.
32	28	0	Negress	46	0	...	...	...	...	3j	...	12	0	57	8	D.	D.	Fever, 13th day ; slight thickening of folds of mitral valve.
33	36	0	129	46	0	...	...	...	...	3j	...	10	12	...	...	...	...	Chronic phthisis.
34	36	0	117	54	0	...	...	...	...	3ij	consid.	12	0	...	...	8	0	Fever, 15th day ; lungs congested.
35	34	0	103	54	0	...	...	...	...	...	consid.	11	0	...	...	...	...	Fever following parturition, 10th day.
36	33	0	84	38	0	33	12	4	4	...	...	8	8	...	...	...	...	Fever, 10th day ; gangrene of lungs ; granular kidneys ; spleen 17½3.
37	31	0	89	47	8	...	...	...	...	...	...	9	12	63	0	D.	D.	Scrofulous abscess of liver opening into stomach ; disease of kidneys ; cartilaginous mass in spleen.
38	39	0	...	44	0	...	...	...	...	...	slight	8	8	D.	...	D.	D.	Phthisis ; pneumonia ; puerperal mania 3 months before death.
39	39	0	95	40	0	...	...	...	...	3ij	slight	9	0	...	...	...	...	Phthisis.
40	38	0	79	...	...	...	...	...	...	...	...	11	0	47	0	3	6	Do.
41	34	0	88	...	...	...	...	...	...	...	...	7	8	45	8	6	8	Emphysema pulmonum and bronchitis.
42	34	0	...	...	...	...	...	...	...	...	...	12	8	...	...	...	...	Pleuroneumonia ; diseased kidneys.
43	39	0	...	...	...	...	...	...	...	...	...	10	0	...	...	D.	D.	Diseased liver and kidneys.
44	36	0	...	49	0	42	12	6	4	3ij	slight	13	12	D.	...	D.	D.	Do. do. and uterus.	
45	34	0	71	38	12	34	0	4	12	...	...	6	8	...	...	D.	D.	Fever ; enlarged liver (743).
46	32	0	107	38	0	32	12	5	4	...	...	9	12	D.	...	5	8	...
...	Avr...	...	...	44	14½	35	13	5	2	...	...	10	0¾	51	0	5	13½	...

TABLE II.—(Continued.)

FEMALES.

No.	Age.	Wgt. of whole body.	Of Encephalon.	Cerebellum with Pons Varoli and Med. Ob.	Fluid in the Ventricles	Fluid beneath the Arachnoid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
	Yrs. mo.	lbs.	oz. dr.	oz. dr.			oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
47	41 0	...	49 8 43 0	6 8	...	...	D.	...	...	...	...	Disease causing Death.—Remarks.
48	40 0	...	48 0 42 0	6 0	...	slight	...	...	...	7 0	...	Aneurism of asc. aorta opening into right ventricle.
49	40 0	80	53 0 47 0	6 0	...	...	9 4	64 0	7 8	4 8	4 8	Fever, 13th day.
50	42 0	79	44 4 38 8	5 12	...	...	...	...	...	...	...	Fever; bronchitis, 10th day.
51	40 0	...	38 0	...	...	slight	9 0	...	...	...	...	Phthisis.
52	45 0	109 ³ ₄	...	...	...	...	11 0	54 0	...	6 8	5 8	Partial parap.; sud. death during convalesc. from fever.
53	45 0	91	...	...	...	...	8 0	47 0	...	4 8	5 0	Phthisis.
54	47 0	109	...	...	...	...	9 12	D.	9 8	D.	D.	Tubercular peritonitis.
55	40 0	75	...	...	...	...	8 0	...	...	...	...	Diseased kidneys and liver (atrophy) 243.
56	40 0	...	...	...	...	...	9 4	66 0	...	7 0	5 8	Fever.
...	Avr....	...	46 8 ³ ₄ 42 10	6 1	...	...	9 2 ³ ₄	57 12	6 8	5 12	5 8	Fever; gangrene of os uteri.
57	52 0	74	46 0	...	...	consid.	8 0	...	3 0	6 8	6 8	...
58	50 0	85	44 12 39 8	5 4	...	slight	...	57 8	4 0	5 8	5 12	Fever; pneumonia, 13th day; slight extravasation on membranes of brain.
59	51 0	...	...	...	...	...	8 8	...	...	D.	D.	Fever, 14th day; pneumonia.
60	53 0	101	...	...	...	...	10 12	...	...	...	...	Jaundice from arrest of secretion; diseased kidneys.
...	Avr....	...	45 6 39 8	5 4	...	...	9 1 ¹ ₃	57 8	3 8	6 0	6 2	Phthisis.
61	63 0	...	48 12 43 8	5 4	...	...	D.	D.	7 0	D.	D.	...
62	65 0	...	44 0 38 0	6 0	...	...	...	...	...	...	...	Disease of heart, liver, and kidneys.
63	60 0	87	...	...	...	...	11 0	...	...	...	...	Disease of heart, and gastritis.
64	66 0	...	...	...	...	...	8 12	...	...	5 2	5 4	Chronic bronchitis, and emphysema.
65	60 0	...	40 0 34 8	5 8	...	...	7 0	...	...	...	...	Meningitis, and pneumonia.
...	Avr....	...	44 4 38 10 ² ₃	5 9 ¹ ₃	...	...	8 14 ² ₃	...	...	...	...	Diseased kidneys, and phthisis; heart fatty.
66	76 0	...	39 0 34 0	5 0	...	...	...	...	...	...	...	...
							...	...	...	...	...	Chronic pneumonia.

(To be continued.)

Part Second.

REVIEWS.

On Disorders of the Cerebral Circulation, and on the Connexion between Affections of the Brain and Diseases of the Heart. By GEORGE BURROWS, M.D. London, 1846. Pp. 220. With Illustrative Drawings.

THIS work, as its title sets forth, embraces two distinct subjects,—an examination of the derangements of the circulation within the cranium, and the connexion between the affections of the brain and diseases of the heart. The author has, evidently, carefully and dispassionately considered the questions upon which he undertakes to enlighten us; and though we have the misfortune to differ from him in opinion on many points, especially in the first of these subjects, and entertain no doubt that several of his conclusions are by no means warranted by the premises, yet we are bound to state that this work, as a whole, reflects credit upon him, and exhibits considerable talent and much professional information. If, therefore, in any of the strictures we shall have occasion to make upon his views of the circulation within the cranium, we should criticise sharply particular statements, and should make use of any expressions which may appear depreciatory of his judgment or his reasoning powers, we beg our readers to attribute this to no want of personal respect, or to any intention of parading his shortcomings, but to our desire to inculcate stricter habits of thought, and more accurate methods of investigation, than are commonly found among our professional brethren. In analysing closely the matter contained in most treatises on practical medicine, facts and opinions are with difficulty separated from each other, and no satisfactory evidence can be found of the existence of truths upon which important inferences are founded.

The circulation within the cranium possesses several peculiarities, which not only excite the attention of the anatomist, but are constantly referred to by the physiologist and pathologist, in their discussions upon the functions and diseases of the important organ there contained, viz. the encephalon. The derangements of the circulation within the cranium is so often followed by such serious consequences, that it becomes an object of the highest practical importance to endeavour to ascertain the nature and cause of these derangements; and, of course, the first and indispensable step, in an investigation of this kind, is to obtain an accurate knowledge of the manner in which the circulation is carried on in the healthy state. There is no one organ in the body, upon the healthy or

diseased states of which the medical man is so often required to decide, as the encephalon, and there is none upon which more serious errors are committed in this respect—errors not only involving the reputation of the practitioner, but what is of infinitely more importance, exercising an influence upon the momentous consequences of innocence or guilt, of acquittal or punishment.

There are certain peculiarities of the circulation within the cranium, connected with the distribution and structure of the arterial and venous systems, which are passed over by our author; and he proceeds at once to a close and searching examination of that peculiarity of the circulation within the cranium first pointed out by *Monro Secundus*, tested experimentally by *Dr Kellie* of *Leith*, and ably illustrated by the late *Dr Abercrombie*. The views adopted by these able men were, that the cranium forms a spherical bony case capable of resisting the atmospheric pressure, and the only openings into it are the different foramina, by which the vessels, nerves, and spinal chord pass. The encephalon and its membranes, the blood contained within the vessels, the serous fluid secreted from the inner surface of the arachnoid, and a small part of the cerebro-spinal fluid placed between the outer surface of the arachnoid and the pia mater, fill up completely the interior of the cranium, and no part of these substances can be dislodged from the interior of the cranium without some equivalent taking its place. For example, since the walls of the cranium resist perfectly the effects of atmospheric pressure, not a drop of blood would flow out from it through the internal jugular veins, unless a corresponding quantity passed into it through the arteries, or some other fluid by another channel, or unless there was an expansible substance within the cranium to occupy the room of the fluid expelled (but there is none such); for the pressure of the external atmosphere, acting upon the soft parts which cover the jugular veins, would effectually prevent its escape. It is perfectly impossible to empty a jar, or any vessel similar to the cranium, with unyielding walls, filled completely with water, or any other fluid or solid material, without the atmospheric air or some other substance taking its place. This is a law in pneumatics so familiar to all, that it stands in need of no illustration. We believe that the same kind of reasoning applies to the spinal canal; in fact, we may consider the spinal canal and cranium as forming one large cavity, which cannot be diminished by atmospheric pressure. Admitting that a quantity of the cerebro-spinal fluid can be forced from the spinal canal within the cranium, by an accumulation of that fluid within the spinal canal, or by an increase of the blood either in the spinal arteries or veins, a proportionate quantity of blood must be pressed out of the vessels within the cranium, and the result would be the same as if serum had been effused from the cerebral vessels themselves. Since the substance of the brain and its membranes are incompressible, at least by any force which may be exerted upon

them by the heart, and as the blood contained within the vessel must also be incompressible by the same force,—it follows, that at every stroke of the heart, when a certain quantity of blood is driven into the interior of the cranium along the arteries, an equal quantity must be dislodged through the veins, provided that no change has, in the meantime, occurred in the quantity of the other parts placed within this cavity. We may here state, that, though fluids are not absolutely incompressible, yet it requires the weight of one atmosphere, or fifteen pounds on the square inch, to produce a diminution equal to 1–20,000th part of the whole. Now, this is so exceedingly small a change upon a mass equal in bulk to the brain, as not to be appreciable by our senses; and as we are not reasoning as mathematicians or natural philosophers upon 20,000th parts, but as physiologists and pathologists upon sensible quantities, we may fairly proceed upon the supposition that the action of the heart can produce no change upon the quantity of fluids within the cranium, for the heart, in its most violent contractions, cannot exert a pressure equal to one atmosphere, or, in other words, produce a diminution equal to a 1–20,000th part. Under ordinary circumstances, the pressure upon the inner surface of the blood-vessels may be between 3 lbs. and 4 lbs. on the square inch; and this may perhaps be increased to 10 lbs. or 12 lbs. during a very violent exertion. Dr Burrows argues, in opposition to this doctrine, as follows, in page 35:—"Atmospheric pressure is undoubtedly exerted on the blood in the vessels entering the cranium. This pressure, by a well ascertained law in hydrostatics, must be transmitted in all directions through the fluid blood, and hence to the blood and other contents within the cranium. If, in the natural state of the parts, the brain is defended from atmospheric pressure, should we not expect to find the functions of that organ disturbed in some way when part of the walls of this sphere is wanting? But in children with open fontanelles, and in adults who have lost part of the bones of the cranium, we observe no peculiar disturbance of the functions of the brain from this gap in the walls of the imaginary sphere." We, for our part, would never expect any disturbance of the circulation within the cranium under the circumstances mentioned by Dr Burrows, and we should have wished to learn the grounds on which he founds his expectations. Dr B. correctly points out how the atmospheric pressure is exerted, through the blood entering the cranium, upon all parts of the brain, and the removal of a portion of its osseous case, so as to allow the external air to press upon its outer surface, would not alter the amount of pressure upon the whole brain, it would only alter the manner of its application. Dr B. goes on to say, "But, lastly, the effects of gravitation on the fluid contents of the cranium, and the effects of the cupping-glasses, which will draw blood from the vessels of the dura mater, causing ecchymosis there, assure us that the cranium is not a perfect sphere in the sense in which it has

been supposed." We shall examine the effects of position on the fluid contents of the cranium in a subsequent part of our remarks on this subject; and with regard to the alleged effects of the cupping-glasses upon the circulation in the vessels of the dura mater, we must express our entire disbelief. If this statement were true, the application of cupping-glasses over the scalp in meningitis would greatly aggravate the disease; but we do not rest our denial of its accuracy upon this ground.

Dr Kellie¹ made several experiments on sheep and dogs to ascertain the state of the vessels within the cranium after a fatal hemorrhage, and these were varied as much as possible to avoid sources of fallacy. Some of these animals were bled to death by opening the carotids or femoral arteries, others by opening the jugular veins; in some, the carotids were first tied to diminish the quantity of blood sent to the brain, and the jugulars were then opened with the view of emptying the vessels of the brain to the greatest possible extent; while in others the jugulars were first secured to prevent as much as possible the return of the blood from the brain, and one of the carotids was then opened. The inference of these carefully performed experiments we give in his own words: "That we cannot, in fact, lessen to any considerable extent the quantity of blood within the cranium by arteriotomy or venesection; and that when, by profuse hemorrhages destructive of life, we do succeed in draining the vessels within the head of any sensible portion of red blood, there is commonly found an equivalent to this spoliation in the increased circulation or effusion of serum, serving to maintain the plenitude of the cranium."² Dr Kellie also adduced the results of experiments upon the effects of position, immediately after death, upon the quantity of blood within the cranium; and the appearances observed within the cranium after death from strangulation or hanging, in favour of the truth of the doctrine we are illustrating. With the view of obtaining more satisfactory evidence on this question, he first removed a portion of the unyielding walls of the cranium in some animals by means of a trephine, and then bled them to death, and the differences between the appearances of the vessels of the brain in these cases and in those where the cranium was left entire, were very great. One of the most remarkable of these differences was the shrunk appearance of the brain in those animals in which a portion of the skull was removed, and the air allowed to gravitate upon its outer surface. In describing the appearances of the parts within the cranium of the first of the three animals trephined, he says, "the brain was sensibly depressed below the cranium, and a space left, which was found capable of containing a tea-spoonful of water."

Dr Burrows, in the work before us, endeavours to show that

¹ Medico-Chirurgical Transactions of Edinburgh, vol. i.

² Opus cit., p. 123.

there is no such peculiarity in the circulation within the cranium as has been contended for by Drs Monro, Abercrombie, and Kellie; and this he attempts to do by appealing to the result of some experiments, neither so varied nor so extensive as those of Kellie, performed by himself; to various anatomical facts; and to pathological and physiological observations, collected by himself and others. The following quotation (p. 33) contains a summary of the conclusions at which he has arrived:—

“(1.) It is maintained, that when hemorrhage takes place from the general system, it does not affect the quantity of blood in the brain. The experiments I have performed lead me to the opposite conclusion.

“(2.) Posture of the body after death is said not to affect the quantity of blood within the head. My experiments show that posture has a most striking influence on the quantity of blood in the cerebral vessels.

“(3.) It has been attempted to prove, that when individuals die of asphyxia or apnœa, there is no excessive congestion of the cerebral vessels. Numerous observations show that, in the different kinds of death by apnœa, there is great congestion of the cerebral vessels, and that where it is absent, it may be accounted for on anatomical and physical principles.

“(4.) It has also been attempted to prove, by an algebraical equation, that if the quantity of blood be diminished in one system of cerebral vessels, it must be increased in the other vessels. In reply to this, I have shown that the results of experiments negative this conclusion. The error lies in the false assumption of the elements of which the equation is formed. It is also clear that there may be variations in the quantity of blood in one set of cerebral vessels without affecting the condition of the others, because the quantity of extra-vascular serum in the cranium will accommodate itself to the varying states of the blood-vessels.”

The first proposition, viz. “that when hemorrhage takes place from the general system, it does not affect the quantity of blood in the brain,” stated in the above quotation to be laid down by those who contend for the peculiarity in the circulation within the cranium which we are discussing, instead of being a correct embodiment of this part of the doctrine, *is an actual misrepresentation of it*; and in proof of this averment, we need only refer to the quotation given above from the papers of Dr Kellie. It is there distinctly admitted, that we may succeed in draining the vessels within the cranium of part of their red blood, but he adds, “There is commonly found an equivalent to this spoliation in the increased circulation or effusion of serum serving to maintain the plenitude of the cranium.” Besides, it is asserted by no one, as far as we are aware, that the quantity of blood in the *brain* may not undergo variation from slighter causes than extensive hemorrhage; for, *according to the supporters of this doctrine, the relative quantities of blood in the vessels of the encephalon, and in those external to it, may and do undergo alteration.* The proposition, to be correctly stated, should have been in this form: “That when hemorrhage takes place from the general system, it does not affect the quantity of *fluids* within the cranium.” With regard to the criticisms made by Dr Burrows upon Dr Kellie’s experiments, and the result of his

own, we may make the following remarks: That the vessels within the cranium should appear to be less filled with blood, as observed by Dr Kellie in some of his experiments, after the animals had been bled to death, than in those killed by a dose of prussic acid, is easily explained. It is a well known fact, that when an animal is bled to death, the blood last drawn is more serous, or, in other words, has fewer red particles in it than in that first drawn, and when means are not taken to prevent the free circulation, and, consequently, the frequent renewal of the blood within the cranium during the time the animal is bleeding to death, the vessels of the brain must necessarily appear less injected after death in an animal that has been killed by hemorrhage from a single artery, though they may actually contain the same amount of *fluid*. Some slight differences between the relative injection of the vessels of the encephalon in a sheep bled from the carotid, and one bled from the jugular vein, may be explained in the same manner. When the carotid artery has been opened, the quantity of blood sent to the brain must be diminished, and the quantity returning from it by the veins must also be diminished, and, consequently, the blood within the cranium must be less frequently changed than when an animal is bled to death from the jugular, where there is nothing to diminish its free circulation through the vessels within the cranium, except what arises from the decreasing supply caused by the hemorrhage. Besides, the blood flows somewhat more rapidly from the carotid than from the jugular, and the circulation of the blood is therefore more quickly arrested.

Dr Burrows admits that he found the brains of sheep slaughtered by the butchers much less depleted than the brains of rabbits which have died by hemorrhage (p. 14). In the former, as both carotid arteries and jugular veins are generally divided, and the animals also soon bleed to death, the cerebral vessels should, according to the view we have expressed above, appear to contain more blood. Dr B., however, explains the difference, by asserting that "those sheep did not die from simple loss of blood; but partly from division of the pneumogastric nerves and cervical portions of the spinal chord." If the cervical portion of the spinal chord be divided, we presume the vertebral arteries are also divided, and if the pneumogastric nerves be divided, we presume the carotids and jugulars are also cut across, and if all the arteries and veins leading to and from the interior of the cranium be severed, what possible influence can the division of the pneumogastrics and cervical portion of the spinal chord have in producing the effect assigned to it? Admitting that some of the vessels enumerated above were not divided, we deny that Dr B. could adduce physiological data to show that simple division of the spinal chord and pneumogastric nerves would diminish the extent of the hemorrhage, when such large vessels are cut across, as is done in slaughtering sheep. Let him analyse the known effects of such

injuries upon the heart's action, and then reflect upon their probable influence under such circumstances. In the disease termed anæmia, as the cases described by Hallé in the "Dictionnaire de Médecine," by Dr Combe and by Dr P. M. Latham, and in individuals bled to death from repeated hemorrhages, as detailed by Dr Marshall Hall, when the blood of the body is not only deficient in quantity, but also in quality, or, in other words, contains not only absolutely, but relatively much less of the coloured part of the blood, and is more serous than natural, the brain, when examined after death, appears paler than usual. But does the cranium contain a smaller quantity of fluid? It would appear not; for, according to all the accounts given of those dissections, the vessels of the brain were always well filled, and have been sometimes described as congested, and never presented the shrunk and pale appearance observed by Dr Kellie, in the brains of animals bled to death after a portion of the skull had been removed by a trephine.

That the blood-vessels within the cranium may appear better filled with blood, as in Dr Burrows' experiments, in an animal suspended by the heels immediately after death, than when suspended by the ears, though the quantity of blood in the vessels be the same, may also be explained. If the blood remain for some time fluid after death, the red particles being heavier than the liquor sanguinis, will gravitate to the depending parts, and, consequently, the vessels within the cranium will contain a larger proportion of red particles, and will be more distinctly seen than when filled with a blood less abundant in red particles. It must further be remembered, that there is a great deal of vagueness in the use of such terms as "congestion of the blood-vessels within the cranium," and that we have no certain methods of ascertaining the normal quantity of blood in any of the organs of the body in individual cases. Every one must be satisfied, who has been much engaged in *post-mortem* examinations, that the organs of the body contain naturally more blood in some individuals than in others, and this cannot always be explained by any particular kind of constitution or form of body. The difference in the quantity of blood found in the vessels of the encephalon, is sometimes very considerable in different persons, who had apparently died under nearly the same circumstances. There being a greater quantity of blood in certain vessels within the cranium, is of course no proof that there is actually an increase in the whole; for suppose that the vessels on the surface were more injected with blood than usual, there may be less in some of the other vessels within the cranium,—a condition of the circulation which is quite in accordance with the doctrine, that the external surface of the encephalon is exempt from the influence of atmospheric pressure, as long as its osseous case remains entire. Besides, it ought to be remembered, that in attempting to judge of the quantity of fluids within the cranium, the venous sinuses ought invariably to be ex-

amined. When, therefore, there are so many sources of fallacy in judging of the quantity of fluids within the cranium, we would, with all submission, suggest to Dr Burrows a doubt, whether the few experiments he performed entitle him to dogmatize so positively on this question; the more especially as they are at variance with the carefully conducted experiments and observations of other competent investigators.

We are very far from being satisfied of the truth of the remarks already quoted from Dr Burrows, that "numerous observations show, that in the different kinds of death by asphyxia or apnoea, there is great congestion of the cerebral vessels, and that where it is absent, it may be accounted for on anatomical and physical principles;" and we feel convinced that this conclusion is not justified by the facts adduced by Dr B. himself in support of it.

Certainly, if any circumstance could produce congestion of the vessels within the cranium, it would be that of death by hanging; for then the vessels, more especially the veins going to and coming from the brain, are compressed and then obstructed, except the vertebrals, which are protected by the peculiarity of their course through the foramina of the transverse processes of the cervical vertebrae. These two arteries must continue for a time to force their blood upon the brain, while a comparatively small quantity only can escape by the veins; for the greater quantity of blood carried to the encephalon by the vertebrals, returns by the internal jugulars, and not by the vertebral veins; and the anastomoses between the cranial and vertebral sinuses could carry off a small quantity of the blood only, transmitted along such large arteries as the vertebral. The vertebral veins are filled with blood from the occipital veins and veins of the spinal chord. Notwithstanding this, many accurate observers have declared that there is no congestion of the vessels within the cranium after death by hanging, however gorged the external parts of the head may be by blood and serum. We, ourselves, had an opportunity of examining the head of a stout muscular man of middle age, and previously in vigorous health, who committed suicide by hanging. The encephalon was not more vascular than usual, and the sinuses contained little blood, though the external parts of the head were gorged with blood and serum.

Dr Burrows very ingeniously attempts to get rid of such troublesome facts, by supposing, that "in making such examinations, all the great vessels of the neck are usually cut across, and the thoracic organs removed from the body, before the head is examined; while the head is elevated during the operation of removing the skull-cap, and examining the brain, the fluid blood gravitates from the cranium," p. 27. He further supposes that the blood may gravitate downwards and diminish the quantity of blood within the cranium, when the head is placed in an elevated position, even when no incisions have been made into the body. The gravitating of the

blood downwards from the vessels within the cranium, here assumed, is so obvious a *petitio principii*, a begging of the whole question at issue, that we need not dwell upon it. The other supposition, that the large vessels in the neck were cut previous to the opening of the cranium, will certainly not serve his purpose. The bodies of the criminals examined by Drs Monro and Kellie, and in the case examined by ourselves, were intended for dissection, and were too valuable, at that period, to permit of such incisions being made in the neck, and the removal of the thoracic viscera.

Dr Burrows is obliged to admit (p. 23) that "the appearances in the brains of those persons who die by hanging, would appear to support the opinion, that the cerebral vessels are not congested or overloaded in those cases where such a condition might be fairly expected;" but he immediately adds, "in opposition to such a conclusion, it would not be difficult to cite numerous well authenticated instances of death by hanging, where the brain and its membranes have presented all the usual appearances of congestion, and even of apoplexy to a striking extent." He accordingly proceeds to cite such cases, and the first mentioned are examples of sanguineous apoplexy, which had occurred during the process of hanging, presenting all the usual appearances observed in the encephalon in that disease. That a blood-vessel should give way within the cranium, and that blood should escape during hanging, when the vessels are preternaturally weak, is nothing more than what we should expect; for as it is more difficult to obstruct the passage of blood along the arteries than along the veins, and as it has been proved by experiment that in asphyxia, as the blood passing along the arteries becomes more venous, there is an increased pressure upon their inner surface, if there be any tendency to sanguineous apoplexy, it is apt to occur at this particular time. These cases, therefore, stated by our author, have no bearing upon the question in dispute. The next and last case brought forward in proof of the statement cited above, is that of the Duke of Bourbon, the last of the Condés, alleged to have committed suicide by hanging. On examining the head, the vessels on the surface of the brain, especially on the anterior lobes, were gorged with dark *fluid* blood, and three ounces of serum were found in the lateral ventricles. Now, though the highly respectable and most intelligent medical men who examined the body, gave it as their belief, that death was induced by the accumulation and stagnation of blood in the brain and lungs, we cannot, we think, be chargeable with presumption in expressing our dissent from this opinion as far as it relates to the brain. It is evident that there was atrophy of the brain in this case, as is proved by the presence of three ounces of serum in the lateral ventricles, without flattening of the convolutions (for if these had been flattened, this fact would surely have been mentioned), and if a part of the solids within the cranium had been removed, an increased quantity of fluid, either of blood or serum, would be present to main-

tain the plenitude of the cranium. We are, therefore, entitled to express doubt, that during the act of dying, if he did die by strangulation, any increase of fluid had taken place within the cranium. Besides, the reporters do not, in our opinion, state that there was an increased quantity of blood within the cranium; for the terms, accumulation and stagnation of blood, refer, we presume, only to the particular vessels mentioned, viz. those on the surface of the brain. Were not the appearances observed in the brain signs of chronic disease of that organ, which led to the committal of suicide, if really he died by his own hands, and in the manner mentioned, for it at least was matter of doubt at the time? Considering that these are the only examples adduced by our author (for we throw aside mere opinions in the decision of a matter of fact), we were not a little startled to find him hazarding the following statement—"Enough has been said on this point of the pathology of the brain to prove, that in the majority of instances, when death takes place by strangulation, hanging, suffocation, drowning, and other means of causing apnœa, that a congestion of the cerebral vessels is found after death."

Our author has entered at some length into details relative to the cerebro-spinal fluid, and the influence which it exerts upon the cerebral circulation (p. 50 to 58). This fluid, he says, "is removable by pressure or absorption; at one time giving place to an increased quantity of blood in the cranium; at another making up for a deficiency of blood in the vessels in the head." That the cerebro-spinal fluid can, and does, pass between the spinal canal and cavity of the cranium, there can, we think, be no doubt; and this admission does not invalidate the accuracy of the doctrine of the unvarying quantity of *fluids* within the cranium, as long as the solid parts remain the same. No doubt the propounders of this doctrine did not take this cerebro-spinal fluid into account in their illustrations of it, as at that time the existence of this fluid was almost entirely forgotten, for it was not until Magendie had again described its extent and position that modern anatomists fully understood its anatomy. We feel confident that our author has magnified the amount of influence which this fluid exercises upon the quantity of blood in the vessels within the cranium; at least there can be no question that he can adduce no proof of many of the statements he has advanced. It is well known that there is found very little of this cerebro-spinal fluid, in fact in general little more than what is sufficient to moisten the surface of the membranes, in the interior of the cranium, in healthy persons, up to the middle period of life. Under these circumstances, the quantity of cerebro-spinal fluid that could be displaced from the interior of the cranium must be trifling. Suppose, on the other hand, a quantity of this fluid were to be forced up from the spinal canal into the interior of the cranium, from any morbid action going on in the former, a quantity of blood, equal to that of the fluid forced into

the interior of the cranium, would be displaced from the vessels in that cavity. We are not, however, aware of any ascertained facts which prove, or even render it probable, that mere alterations in the distribution of the blood in the vessels of the cranium and spinal canal are of themselves sufficient to effect any very decided change in the relative quantities of the cerebro-spinal fluid that may at the time happen to be present in the interior of the cranium, and within the spinal canal, and the onus probandi rests upon those who assert that these do so. With regard to the movements observed in the encephalon, when the osseous case surrounding it is imperfectly formed, or when a portion of it has been removed—discussions upon which have been mixed up with the question we are now considering—we would make the following remarks. One of these movements is synchronous with the pulse, the other with expiration. The first depends upon an elevation of the entire brain by the fresh stream of blood driven into the large arteries at its base by each stroke of the left ventricle. The second depends upon the difficulty which the blood encounters in its free passage to the heart during expiration, especially during forcible and prolonged expiration, when the parts within the thorax are compressed, and there is consequent retardation and accumulation of blood (not reflux of blood, as Dr B. asserts), in the veins leading from and within the interior of the cranium itself, when a portion of the skull is deficient.

Can there be any such movements of the brain when the skull is entire? We think not; and for the following reasons:—If we were to remove a portion of the cranium, and carefully observe these motions, we would be convinced that they do not depend upon any recession of the brain from the inner wall of the cranium and its subsequent application; for the brain remains constantly in contact with the inner surface of the cranium, and actually consists of a slight protrusion through the opening in the parietes of the cranium, and a return to its former level. To us it appears obvious, then, that if there were no opening in the walls of the cranium, there would be no movement. These facts, however, sufficiently show the effects which long continued efforts, and the contractions of the heart, have upon the cerebral circulation. When the heart acts violently, the blood must be driven with greater force into the vessels at the base of the brain, and exert a greater pressure on the inner surface of the vessels, and consequently also upon the substance of the brain. And during a violent exertion, when the glottis is closed, and the parts within the chest violently compressed, the retardation of the flow of blood along the cerebral veins must increase the pressure upon the brain, and may assist in deranging the balance of the circulation, or causing rupture of the blood-vessels, though, as we have attempted to show, it may not, from certain physical conditions of the parts within the cranium, increase the quantity of blood there.

We have dwelt at such length upon the first part of this treatise,

that we have space left for a hurried view only of the remainder. In the section (p. 80), in which our author treats of apoplectic coma, we find several statements from which we dissent; but as in many of these the points we have already discussed are involved, we pass them over. He attributes those cases of simple apoplexy, where no sufficient cause is found for the fatal result, to congestion, and, as his remarks imply, accumulation of blood in the vessels within the cranium; and he explains the absence of the signs of this increase of the quantity of blood in the vessels of the brain, by supposing that by the blood-letting, purging, posture, and other remedies employed, "the cerebral congestion, on which the apoplectic coma depended at the time of seizure, has been entirely dissipated." Of course, this statement can only be advanced as a supposition, and not as a fact, seeing that no proof is offered. We are aware of cases where the above explanation of the absence of increased quantity of blood in the cerebral vessels could not apply. We should like to have been favoured with Dr B.'s explanation of the fatal result, notwithstanding that, before this took place, "the cerebral congestion on which the apoplectic coma depended has been entirely dissipated;" seeing that he learnedly quotes, a few pages after, this definition of the cause of a morbid action, with the view of clenching an argument on another point—"Vera causa, præsens morbum facit; mutata mutat; sublata tollit."

We agree with our author, in maintaining, as some previous writers have done, that we are not justified in attributing the coma in what is called serous apoplexy, to the presence of the serum found within the cranium. At least this opinion cannot be disputed in those cases where the physical signs of undue pressure by increased effusion of serum upon the encephalon are wanting. These physical signs are easily recognised, and consist of a flattening and pressing together of the convolutions of the brain. Dr B. attributes the coma in such circumstances to an accumulation of blood within the vessels of the brain, though he admits that this opinion is not based upon post-mortem appearances. We cannot admit the validity of this supposition, and maintain that the condition of the brain which causes the symptoms in this form of apoplexy has not yet been fairly elucidated.

We were not a little surprised to find our author giving it as his opinion, "that apoplectic coma is rarely dependent upon the extravasation of blood, although the concomitant paralysis undoubtedly is (p. 92). This opinion is chiefly founded upon the circumstance, that the coma may disappear before the effused blood has been removed by absorption, and where we have the alleged cause existing, though the effect has disappeared. Now, this is not a fair statement of the facts of the case. The same cause acting on a substance will invariably produce the same effect, provided that the conditions of the substance acted upon remain the same; but if the conditions of the substance are changed, the effect will

differ. Now, though the alleged cause, viz. the effused blood, may remain unchanged, does the condition of the substance acted upon, viz. the brain, undergo no change? Does not every organ in the living body accommodate itself, more or less, by virtue of its vitality, to the circumstances under which it is placed? Suppose a person became comatose immediately after a blow upon the head, depressing a portion of the skull,—and there are many such cases on record,—and that after a time the coma disappeared, though the depression of the skull remained unchanged, would it not be considered paradoxical to refer the coma to congestion of blood within the vessels of the brain,—the cause assigned by Dr B. for the coma in sanguineous apoplexy,—and not to the depression of the skull?

We gladly leave this portion of Dr Burrows' treatise, in which there is so much to blame, and turn to the second division of it, where there is much to commend. In the section on the treatment of apoplexy and hemiplegia, there are many judicious indications laid down; and the importance of attending to the state of the heart and lungs, especially the former, before deciding upon the line of treatment to be followed, is inculcated more strenuously, and on more conclusive data, than is to be found in any other author. We fully concur with him "in reprobating the indiscriminate use of the lancet in these cerebral affections." We have not been able to perceive the *rationale* of *all* the rules of treatment he recommends; but as the principal of these seem to be very judicious, we have no wish to discuss the value of the others. The extended, careful, and valuable researches made by our author, on the connexion between affections of the brain and disease of the heart, are well deserving of the careful study of the practitioner; but the length to which our remarks have already extended, prevents us from entering upon this branch of his inquiry. In conclusion, we may state, that the style of the book is excellent, and much superior to the generality of medical works. The language is generally good and appropriate, and there is no difficulty in understanding the author's meaning. Any one, however, if hypercritically inclined, might point out a few slovenly expressions; and in what piece of composition of the same extent may this not be done? For example, the expression in the following quotation, which we have printed in italics, though admissible in conversation, ought not to be used in a professional treatise:—"She was conscious in the fit; *upon coming to*, she found she had lost the use of the limbs of one side."

J. R.

A Practical Treatise on the Diseases of Children. By JAMES MILMAN COLEY, M.D., Member of the Royal College of Physicians of London, &c. Author of "A Treatise on the Remittent Fever of Infants," "Essays on Erysipelas," &c., &c. London: Longman, 1846.

THE work before us purports to be the result of the practical experience of forty years; and the author's object in publishing is, "to present to the medical profession, and the public, a comprehensive work on the diseases of infants and children, which the physician, the surgeon, and the general practitioner, may consult as a work of reference." The author tells his readers, that there is no work, British or foreign, which comprehends "all the diseases incident to children, and their appropriate surgical, as well as medical treatment." Dr Coley has certainly endeavoured to supply the alleged deficiency; but we rather think he has attempted too much, and hence, as might be expected, from the importance which he attaches to his surgical experience, surgical education, and surgical master, this "Treatise on the Diseases of Children" contains nearly a complete course of operations in surgery, from the filing of a tooth to the operation for strangulated inguinal hernia; as well as a complete course of ophthalmic medicine and surgery. We doubt the propriety of a work on the diseases of children being permitted to travel so far out of its proper sphere. We consider that such a book should treat of those diseases only to which children are peculiarly liable, and not of every disease or accident from which they may by any possibility suffer.

There is one subject, that which the author terms the "*domestic process of feeding and nursing infants*," which has been altogether omitted from the "treatise." We cannot help regarding this as a very serious fault; and we are confident that all who practise in the diseases of children will think with us, that Dr Coley might with great benefit have substituted a chapter on nursing for the chapters on surgical practice. Every child must be fed or nursed after some fashion or other, but not one in fifty thousand requires to be operated on for strangulated inguinal hernia. Indeed, it is surprising how little infantile hygiene is understood or cared for, and how much the rules which relate to the rearing of children are neglected by medical men. This is the more to be wondered at, when we reflect that proper rearing, while in the cradle, lays the foundation for a robust and vigorous manhood; while bad nursing, on the other hand, is the most frequent cause of the development of the scrofulous habit of body, which brings with it its countless train of evils. It is in infancy especially, that an exact observance of the laws of hygiene is necessary, whether to preserve health, or to re-establish it, when disease has interrupted its continuance; and a knowledge of these laws is of so much the more importance,

since we have so often in practice to contend against old prejudices as to the mode of rearing children. We are not likely, however, to advance in our knowledge of them, so long as medical men look upon the clothing, feeding, and nursing of infants, as domestic processes fit only for old women, or so long as authors who treat of the diseases of children altogether omit the subject from their works.

As an example of the author's chapters on ophthalmic diseases, we give a brief summary of his treatment of scrofulous ophthalmia. He points out that scrofulous subjects are irritable, weak, prone to inflammatory affections, and incapable of bearing fatigue or confinement. Hence, in such patients, it is of the first importance that their diet and exercise be carefully regulated, and that the absurd practice of plunging weakly children in cold water, or allowing them to run about half naked, ought to be sedulously avoided. The best internal remedies, he thinks, are purgatives followed by tonics, calomel and jalap every third morning, and sulphate of quinine twice daily. We have seen the most rapid and regular amendment under the use of hydrarg. cum creta, combined with sulphate of quinine in such proportions as to be given twice daily. Mr Hamilton of Dublin, Dr Coley remarks, recommends the bichloride of mercury. For local remedies, our author recommends a mixture composed of equal parts of opium-wine and water, or a solution of nitrate of silver to be dropped into the eye with a quill; we have found a hair pencil much better than a quill; the former cannot injure the eye, but the latter may, when the child rolls its head about as it generally does, being irritated by the exposure of the affected organ to light. We have also seen great benefit derived from Dr Hocken's practice of drawing the solid nitrate over the inner surface of the upper eyelid. Dr Furnival recommends the application of tincture of iodine to the external surface of the upper and lower eyelids; and an American practitioner recommends, as a better application than nitrate of silver, the insinuation between the eyelids of an ointment composed of from ten to thirty drops of creosote to an ounce of ung. hydrarg. Our author advises that, if the cornea becomes ulcerated, the solid nitrate should be applied to the ulcer; and if perforation takes place, that extract of belladonna should be smeared round the eye night and morning, to dilate the pupil and prevent adhesion of the iris to the ulcerated opening. Some authors recommend that, instead of extract of belladonna, a solution of atrophine should be used; but so far as we can judge from our own observation, we believe that atrophine dilates the pupil more rapidly than belladonna, but that the dilatation is not so permanent; hence it is not so useful in the class of cases before us as belladonna. After the disease has been subdued, Dr Coley observes that the strictest attention should be paid to the dwelling of the patient; indeed, we are confident that there is no more frequent cause of scrofulous or of purulent ophthalmia, and nothing that

maintains these diseases more stubbornly than the child being confined to some one small, close, and ill-ventilated apartment; without proper regard to this point no child will ever get well, whatever be the medicinal treatment, or, at least, if he does recover, it will be only temporarily. One remedial agent our author seems to have forgotten, viz. the application of blisters; nothing produces more marked amelioration than the application of a small blister once a week behind each ear alternately. We have seen practitioners apply large blisters to the back of the neck; these answer equally well as far as the treatment of the disease is concerned, but the child cannot move its head without pain; hence it is in a state of constant excitement, is perpetually crying, and gets no sleep; whereas by applying a small blister immediately behind the ear, over a part which is comparatively unaffected by motion, all these inconveniences are avoided, and one side of the head is always healed, so that upon this the child can rest without pain. The ointment of the nitrate or of the red-oxide of mercury should also be applied to the eyelids every night. Our author next describes the various diseases of the eyes, and the necessary surgical operations; in these we observe nothing specially relating to the diseases of children.

Dr C. next enters on "diseases of the skin." In these we regret to find his pathology rather of an ancient date, scarcely more modern than that of Willan or Bateman, whose arrangement he follows, and from whom his descriptions are frequently quoted. In his treatment of scarlatina, Dr C. attaches great (perhaps rather too much) value to sponging with cold water—he says that "no remedy is so useful or indispensable during the febrile paroxysms. For the ulcers on the tonsils he recommends the application of a solution of two grains of the bichloride of mercury, in an ounce and a half of water—this "should be rubbed on the ulcers until their surface is abraded and bleeds, and the deep hollow and rugged cavities afterwards rapidly granulate and heal." In Dr C.'s practice, ascites after scarlatina has always yielded to the careful employment of digitalis and bicarbonate of potash, with occasional bleeding, and a few doses of elaterium. In the malignant variety of scarlatina, our author recommends that after the bowels have been freely opened, a few grains of the sesquicarbonate of ammonia should be administered every two or three hours; bleeding will rarely be admissible, and purgatives must be used with circumspection. After the stage of oppression has been removed, and the skin has become moist, quinine with diluted sulphuric acid may be administered with benefit. Dr Watson recommends the following mixture in bad cases of sloughing sore throat:—

R—Potass. Chlorid.	.	.	3ij.	Solve in
Acid Hydrochlorici.	.	.	3ij.	

Two drachms of this solution are to be mixed with a pint of water, and of this one or two large spoonfuls are to be taken frequently.

The application of cold water will here be improper, excepting to the head. Wine and nutritious food will be required, and “if the integuments of the back become inflamed, they should be bathed with the *liquor plumbi diacetatis* to prevent ulceration. The profuse and offensive discharge which sometimes flows from the ears may be moderated by an injection of one part of tincture of myrrh and five parts of lime water.

As Dr Coley tells us in his preface that he has introduced some innovations and, he trusts, improvements, into the treatment of *erythema nodosum* and *porrigo*, we present these to our readers in his own words. Of *erythema nodosum* he says,—

“The best local remedy is tepid or cold water, according to the season, applied by means of linen rag, which should be folded and confined by a loose roller. When ulceration is permitted to occur, strips of *emplastrum plumbi* and a roller should be applied every night. When the disease is discovered before ulceration takes place, it will be rapidly cured by the following pills:—

“R—Hydr. Bichloridi gr. j.
 Pulv. Lini gr. xlviii.
 Muc. Acaciæ, q. s. ut pr. pil. xxiv.

“Two of these pills may be given to a child from six to ten years old, and three to a boy or girl fourteen years old, twice a day. By this treatment, the tumours entirely disappear in the course of ten or fourteen days. Should the disease remain stationary, the dose of the bichloride may be cautiously increased.

“The manner in which this medicine operates, is by exciting the capillary arteries, and removing that remora, which, unrelieved, is liable to terminate in the total cessation of the circulation, and the consequent disorganisation of the affected part, as occurs in the more aggravated form of the disease, called *phyma* or boils.”

We cannot help imagining, that while the author has been writing on the treatment of *erysipelas*, he has been thinking of that disease in adults, or, at all events, in older children. We protest against the propriety of making “unsparing incisions” in infants, even although practitioners are aware that this is a most dangerous disease, and one which is generally fatal. The last novelty which we have seen proposed for its treatment is by M. Meigs, a mixture of the ointment of *basilicon* and the spirit of turpentine applied several times a day to the affected parts. He affirms that the disease promptly yielded to this remedy. Nitrate of silver and the actual cautery, locally applied, have been found powerless to stop the spread of this disease. On the treatment of *porrigo scutulata*, Dr C. observes,—

“The astonishing number of specifics recommended for this eruption, prove the intractable nature of the disease. Very few of the acrid applications mentioned in books are advisable or useful. The hair should be cut off, not shaved; and, during the day-time, folds of linen rag, moistened in cold water, should be applied all over the head, and moistened again with cold water as often as they become dry. At bed-time the head should be covered with the leaves of ivy (*hedera helix*). The Irish or giant ivy, from the Canaries, is the best. The patient should take internally a grain or two of iodide of potassium, twice a day, and be well purged with salts and senna every second or third morning. I have never found this treatment to fail, except in one case, which was afterwards cured by an ointment composed of one drachm of sulphate of iron, and

one ounce of lard ; the cold water being used at the same time. The manner in which the water dressing acts, is by promoting evaporation, which removes the excessively redundant heat from the surface ; and I suppose the ivy leaves, possessing a kind of natural varnish, operate by exciting cutaneous perspiration, which of itself is a cooling process. This is the only mode of treatment from which I have found success in a reasonable time."

Our author boasts of being able to effect a complete cure of the most formidable cases of *porrigo favosa* in a fortnight, by giving the patient doses of calomel and jalap every third morning, and rubbing the head night and morning with the *ung. hydrarg. præcipitati albi*, the head being well washed every day before the ointment is applied. We feel satisfied that cases so cured have been mistaken by the author, and were more probably chronic eczema than true panus, of the nature and mode of distinguishing which Dr Coley seems to be completely ignorant.

In the following paragraphs the author gives us a history of the modes which have been adopted at different times, by different practitioners, for the cure of cuticular aneurism.

"One of the best remedies for varicose excrescence or nævus, is creosote, which may be applied about once a week to the whole of the diseased surface by means of a feather, or camel-hair pencil. By this application, twice used, I succeeded in removing this disease, which occupied thirty square inches of the skin of the abdomen, and which had been only temporarily cured by an extensive eschar produced by hydrate of potash. Creosote has besides this decided advantage over the former remedy, namely, that of destroying the disease without disfiguring the skin. When the marks appear distinct from each other, every one, however minute, must be touched with the escharotic. Nitric acid will often succeed. I have ascertained, from long experience, that this disease is much less apt to return or appear round the circumference, after it has been removed by escharotics, than when it has been extirpated by the knife ; and therefore, I have of late years discontinued to advise such an operation. Many other remedies have been adopted with various success by different practitioners. The mode of applying nitric acid adopted by Sir Benjamin Brodie, is by using a glass pen dipped into the acid and drawn over the diseased parts, or by puncturing the principal vessels, and afterwards introducing a little acid with the pen. Nitric acid, as well as creosote, leaves no mark. Dr Sigmund applies repeated compresses saturated with liquor plumbi diacetatis (or what he calls acetum plumbi) with success.

"The stationary spots or 'taches' require no remedy. When destroyed by caustic, the marks left by the remedy are more unsightly than the original stains.

"When cuticular aneurism is so situated as to admit of incision, and the union of the divided parts by the first intention, that is the most eligible operation for its cure. In other cases, caustic, or the double ligature, may be preferable. Mr Wardrop cured a large cuticular aneurism on the face of an infant five months old, by tying the carotid artery. In a similar case the infant died on the fourteenth day after the operation from the irritation of the ulcer. The ligature applied to the diseased parts is the most effectual plan, when excision or caustic is inapplicable ; as several cases in which the carotid, temporal, and other arteries have been tied without success have occurred, and cures have been afterwards effected by ligature. Hence proximate are preferable to distant obliterations, which can only command the circulation in particular directions. In one instance, after the carotid artery had been tied, death took place from inflammation of the jugular vein. The disease has been

cured by punctures being twice made through it. The tumour has been successfully strangulated by two harelip pins passed through crossways, and a ligature applied tightly underneath them, by Dr Bacton. Mr Lloyd prefers, in most cases, an injection composed of sp. ammon. arom., or sp. ætheris nitros. one part and nitric acid from ten to fifteen parts. For the mode of applying the syringe and compressing the disease, see the "Medical Gazette," vol. xix. p. 16. Mr Doubleday effected a cure by introducing a couching needle in the centre, and moving it about in all directions, so as to break up its structure. This proceeding was repeated seven times at intervals of one month, and the disease vanished at the end of a year. Diluted liquor ammoniæ has been tried as an injection, but death took place instantly from its use. Mr Liston divided the integuments, and partially detached the tumour by two elliptical incisions, and then passed a double ligature through its base, and tied it. He has also adopted another plan, namely, making a crucial incision, and dissecting the flaps back to their base, over which ligatures were applied. Cuticular aneurism has also been cured by needles made red hot by means of a spirit lamp, and passed twenty times through different parts of the tumour. The operation was repeated twice afterwards at intervals of a week, and at the end of a month the tumour entirely sloughed away, and left no vestige of the disease. No hemorrhage, and apparently little pain, attended the operation.

"Professor N. R. Smith, of Baltimore, cures it by passing with a needle threads moistened with a saturated solution of caustic potash through the tumour in different parts; and Lafarque, by puncture made with a lancet dipped in croton oil, which is followed by boils and ulcerations."

The author does not mention the mode of cure by inoculating with the vaccine virus round the circumference of the nævus;—this plan we have seen in three instances eminently successful.

We now come to the diseases of the mouth and pharynx. In treating of muguet, the author's pathology is again at fault. He still regards the disease as the formation of a false membrane similar to that found in croup, and he seems to be unacquainted with the observations of Gruby, Klenke, Remak, and others, on the cryptogamic nature of this affection.

Dr C. gives a graphic description of the symptoms and morbid appearances of that rare disease, gangrene of the mouth, for which we regret we have not space. This disease is so rapidly fatal, that but little time is allowed for the employment of any treatment before the patient is in a hopeless condition. Some powerful escharotic, such as nitric or hydrochloric acid, or the pernitrate of mercury, should be immediately applied, and their application repeated until the sloughing process ceases, and the powers of the patient sustained by simulants and nourishing food.

With regard to the diseases of dentition, though we doubt the soundness of our author's pathology, we agree with him, that it is ridiculous to observe the "ignorance displayed, as well by the profession as by the public on this subject; every concomitant disease, the exact nature of which is not obvious to their apprehension, being attributed to the teeth." It is, in short, merely falling back on the antiquated physiological doctrine of morbid influences acting by "sympathy," *i. e.* acting in some way that we are unable to explain. The author very properly reprobates in diarrhoea, during dentition, the indiscriminate employment of the

scarificator and opium, with astringents, under the supposition that the diarrhœa depends solely on the so-called sympathetic irritation arising from dentition. Of course, we do not mean to deny that convulsions and dangerous constitutional excitement may happen from the irritation of teething; for every one who has practised at all must have seen the marked relief and calmness that frequently follows the lancing of the gums, or the appearance of a tooth.

In his treatment of pharyngeal diphtheritis, our author is rather meagre; he seems to us to have entirely neglected the utility of emetics and leeches, and to place his chief confidence in cauterising with the concentrated mineral acids, and the exhibition of calomel. These are, doubtless, remedial agents of the highest utility, but their efficiency will be much increased by a proper use of emetics and leeches—indeed, by the early employment of these, with a milder escharotic, such as alum, the disease may be frequently cut short. Where the diphtherite extends into the larynx, and laryngotomy is deemed advisable, Dr C. recommends Dr Hilton's mode of performing the operation, as more speedy than the usual method—it is, to puncture the crico-thyroid membrane with a trocar and canula, “the canula being oval from side to side, and the trocar lancet-shaped, much flattened above and below, and cutting at its point and edges.”

In inflammation of the mucous membrane of the stomach, and in some other diseases, the author recommends the application to the epigastrium, for an hour, of a poultice, composed of mustard, oatmeal, and vinegar. This is a kind of treatment we would by no means advise, for such a mustard poultice will excite, in a child, far more violent irritation than a fly blister applied for double the time; and, moreover, the beneficial effect of the poultice is more transient.

Dr Coley says, he has never met with an uncomplicated case of chronic dysentery which has not yielded to doses of the sulph. magnesiae. In his preface our author says, he trusts that his “delineation of the various and sometimes obscure forms which the dysentery of children assumes may improve the diagnosis and treatment of intestinal diseases.” We would really advise Dr C. not to bring forward this chapter as an example of his perspicuity, for here he indeed seems to us only to have added darkness to obscurity.

In the treatment of cases of long-continued diarrhœa and chronic dysentery, we have been highly successful by the administration of nitrate of silver by the mouth and by the rectum; from 1-8th to 1-16th of a grain, dissolved in distilled water with a little syrup, may be given in divided doses in the course of twenty-four hours; and 2-3ds of a grain in solution may be employed as an enema; it has been useful in moderating the obstinate diarrhœa which accompanies pulmonary phthisis and tabes mesenterica.

The author gives a very fair account of the symptoms and

"*marche*" of *tabes mesenterica*, but in the treatment he is very deficient; not a word, for instance, is said of the utility of the cod-liver oil, which, in our own practice, we have frequently seen of the greatest benefit, when the case has not been too far advanced; in short, his account of the treatment is unsatisfactory, and only contains what every practitioner knows.

In *prolapsus ani* the author seems rather too prone to operative interference, either with the scissors, the actual cautery, the ligature, or nitric acid. For our own part, we have seen a great deal of this complaint, and have never yet met with a case which did not yield to proper regulation of the bowels, or, ultimately, to the internal administration of the powder of *nux vomica*. This remedy we employed from having seen its watery extract, in doses of from one to four grains daily, used with the best possible results by Professor Barez in the practice of the *kinderklinik* of the Charité in Berlin. Any operative procedure further than reduction by the taxis we believe to be, in children, perfectly uncalled for; and even this is rarely necessary. In constipation, the author speaks of emptying out the rectum of an infant with a marrow spoon. Such an operation we have known to be necessary in the case of a female in labour, but never in an infant. The *alöetic* mixture recommended for this purpose by the Drs Campbell in their work on midwifery we have found highly efficacious in overcoming cases of the most obstinate constipation.¹

On the subject of cerebral croup, or *laryngismus stridulus*, our author gives us rather a tedious chapter. His attention has been particularly directed to this disease, for we regret to observe he has had two fatal cases of it in his own family. He has no doubt that the cause of this disease is occasionally traceable to one of the nervous centres, but most of the cases that have happened in his own practice have arisen, he says, "from an excited state of the laryngeal nerves, produced by the pressure of undigested food in the stomach or duodenum, or some part of the other small intestines. The morbid condition of the stomach has been preceded by imperfectly cured remittent fever, or by a neglected state of the bowels," so that any food that is given to the child passes through unaltered.

This disease has been ascribed to hypertrophy of the thymus gland, hence called *asthma thymicum*, and by various authors to pressure on the laryngeal nerves by enlarged glands; but Dr C. attributes the disease chiefly to that "overfeeding which is practised so universally, without regard to the age of the child or the presence or absence of teeth." Hence, according to our author, the rarity of the disease in France, where the diet of children is more spare and liquid, as compared with the too solid food given in Great Britain. Next in frequency to overfeeding as a cause, "is

¹ Campbells' System of Midwifery, p. 758.

a collection of solid fæces in the colon; and next to that is the secretion of viscid mucus, resembling white paint, in the duodenum or upper portion of the small intestines. This morbid secretion I have found peculiar to this singular disease, and wherever it has been present epilepsy has supervened. No decided relief is afforded to the spasm until this mass is removed by active purgatives." According to our author, "those children are most predisposed to spasm of the glottis who are descended from scrofulous or delicate parents," and males rather than females.

From what we have quoted as to our author's pathology of this disease, our readers will be prepared to expect that his treatment is almost entirely directed to the regulation of the chylopoietic viscera. In a few cases we have seen musk combined with quinine, and injections containing assafoetida, of marked benefit. Some French practitioners highly recommend the administration of belladonna or decoction of valerian. All medical treatment, be it what it may, must be combined with proper attention to diet.

In œdema of the glottis, our author places his chief reliance on the free administration of calomel; thus to a child a year old, "two grains every half hour until relief is afforded." This is the treatment recommended by Dr Wallace, and the author says he has seen extraordinary results from its employment.

We are somewhat disappointed with the observations on croup; for, first, the symptoms are not intelligibly described; and then we are somewhat puzzled by an obscure passage, from which we are almost led to believe that our author makes apoplexy and asphyxia synonymous; in short, he seems to consider the symptoms of asphyxia, viz. the purple lips, the stupor, the purple colour (the *tumefaction violacée*) of the face, as symptoms of apoplexy. We have often heard of croup ending by asphyxia, but never by apoplexy. For the treatment of croup, the author advises, first, the administration of calomel, and then leeches; if, by these means, speedy amendment be not produced, emetics are to be exhibited, and afterwards a blister applied. This appears to us tardy and inefficient treatment, for an acute case at least; we should say, if the child can bear it, at once open the jugular vein, and *then* administer calomel. We regard the application of leeches in such cases as merely a loss of time, the disease being allowed to gain head, as it is much too rapid in its progress for these to be of any permanent utility; they generally give only temporary relief. After the bleeding, calomel may be given; and when the disease has been by these means partially overcome, emetics will be found of the greatest use. In slight attacks, emetics and leeches may be sufficient, or the case may be too far advanced for the employment of venesection. In thirty-one cases where emetics were actively employed, Valleix saw thirteen recover; but of twenty-two where they were only sparingly used, one only recovered. Instead of emetics, tannin has been blown into the trachea with good effect.

In the treatment of croup we commend the author's disapprobation of antimonial wine for young children. We have often seen it have dangerous effects on them, and we are confident we have witnessed children destroyed by it, and not by the disease for which it was administered. It is one of our most useful agents in the diseases of children, but its safe exhibition demands more experience and greater caution than most practitioners suppose.

We pass over the author's chapters on some of the diseases of the lungs, not because they are unimportant, but because they contain nothing particularly deserving of notice, and they seem to us not so much modelled on these affections as they appear in children, but rather as they are met with in adults.

We shall not enter with our author into the different theories as to the pathology of whooping-cough. He considers it to be "nothing more than a bronchial catarrh of a specific character which is modified by the treatment, and the constitution of the patient." Adopting this view of its pathology, our author's chief treatment is to confine the patient night and day to a chamber at a temperature of 65° Fahrenheit, to regulate the bowels, and give a mixture of citrate of potash and squill. This regulated temperature may be commenced at any period of the disease. He exhibits no emetics, as is generally done, but administers half-grain doses of the sulphate of zinc or copper, combined with sulphate of quinine. These, he says, together with the increased temperature, diminish the pulmonary secretion when excessive, and "the quinine will assist the stomach in retaining the zinc or copper, and in removing the periodicity or quotidian access of fever." After the practice of Dr Berger of Berlin we have seen the nitrate of silver in doses of $\frac{1}{16}$ grain three or four times daily of great use in cutting short this complaint. In a few cases the patients were perfectly recovered by the end of three weeks. He himself mentions one case where the disease disappeared in ten days. A solution of cochineal and alum and injections of assafoetida, with the internal exhibition of syrup containing sulphuret of potassium, have all been found of great service.

The chapters on "diseases of the brain and nervous system" we regard as perhaps the most indifferent part of Dr C.'s "treatise." Congestion of the brain the author treats according to the established mode, viz. with leeches and purgatives. For our own part we always prefer a blister to leeches. It is true the application of leeches is *prima facie* a more natural remedy, but we are positive, from extensive experience with both leeches and blisters, that the latter, together with calomel and scammony, cold applications to the head, and a warm bath, is a much more efficient and successful treatment than that recommended by our author. Whilst writing one of the previous pages of this article we were called to visit a child eight weeks old, exhibiting every symptom that the author lays down as characteristic of congestion of the brain, with this addition, that it had occasional slight convulsions.

We ordered a blister to be applied for an hour and a half to the nape of the neck, and after this a poultice, with the other treatment above mentioned, and although twenty-four hours have scarcely elapsed since we were called, all the dangerous symptoms, even to the drowsiness, have disappeared. This is only one instance of many. Probably the blister is more useful because its effects are more permanent. In treating of inflammation of the cerebral membranes, our author divides them into inflammations of the dura mater, of the arachnoid, and pia mater; and what does he gain by this division? Merely, that he describes each disease and its treatment separately, without being able to point out any tangible distinction between them. We will venture to say, that neither the author nor any one else ever saw in a child uncomplicated inflammation of the dura mater; and therefore, his idea that "a little attention will prevent any mistake in the diagnosis" between (we presume) inflammation of this and of the other coverings of the brain, is ridiculous; and, after all this subdivision, the author is obliged to conjoin inflammation of arachnoid and pia mater. Dr C. says, that "general bleeding has little control" over inflammation of the dura mater, and that "the blood, when drawn, is neither cupped nor buffed." Truly, we are unable to comprehend what sort of a disease Dr Coley's inflammation of the dura mater can be. In the treatment of inflammation of the arachnoid and pia mater, Dr C. properly recommends copious bleeding by leeches, or by opening the jugular vein; we prefer the latter. Mercury, he thinks, promotes serous effusion in the brain. In this we cannot agree with him. We consider mercury of doubtful utility in the early stage of the disease; but after the acute symptoms have been in a measure subdued, we have seen it of the greatest utility in promoting the absorption of the effused fluid. It may be given internally, but we think the best mode of using it is to apply a blister to the nape of the neck, and employ the mercurial ointment as dressing. This is confirmed by the experience of Gölis and Marshall Hall, in cases of chronic hydrocephalus, as afterwards mentioned by our author. The author does not appear to us to insist sufficiently on the benefit to be derived from strong purging, neither does he allude to the extreme utility of the cold water douche applied to the head. We do not approve of the author's recommendation of tartrate of antimony in these cases, neither do we agree with him in the value which he attaches to the employment of digitalis.

We do not exactly comprehend the nature of the cerebral apoplexy described by the author. There seems to be some inexplicable confusion between apoplexy and asphyxia, as in the following passage. We will not say that Dr C. does not know the one from the other; but let him speak for himself:—

"Apoplexy occasioned by violent passion, or any kind of mental emotion, will require loss of blood and cold applications to the head.

"When the disease arises from severe pain, its immediate cause is the circulation of venous blood in the brain from cessation in the action of the heart. In some cases of this kind, the appearance produced on the cutaneous capillaries, resembles that which accompanies asphyxia from the inhalation of carbonic acid gas. The skin is more or less discoloured, and stertorous breathing succeeds.

"*Case*.—Master H., four years old, while playing in a garden, forced a stick into a hive of bees. The insects instantly swarmed upon him, and stung him in such numbers, that he fell into a state of asphyxia, with stertorous respiration, and the skin as black as that of an Ethiopian, the effect of the circulation of venous blood in the brain. I placed the boy immediately in a warm bath, and detained him in it about fifteen or twenty minutes, at the end of which time sensation began to return, and the discoloration of the skin to disappear. In all cases of apoplexy arising from severe pain, whether accompanied or not with convulsions, the warm bath will be found the most efficient remedy."

Here the author tells us that the disease (*i. e.* apoplexy) is caused by the circulation of venous blood in the brain; and a page or two previously (*vide* p. 422), he told us that its cause was interruption to the cerebral circulation. Does the author call the foregoing case one of apoplexy or asphyxia? or are they, in his nosology, synonymous terms?

We do not approve of the author classing all manner of convulsions and fits under the term epilepsy; there is a vast difference between the acute convulsions (the *eclampsia*) of infants, and the periodically recurring fits of children and adults. Trismus nascentium our author attributes to exposing the face or body "to a sudden change of temperature, which produces inflammation in the neurileme of the inferior maxillary branch of the fifth pair of nerves;" but he does not support this theory by any anatomical proof.

In his chapter on scrofula, our author becomes entangled among globules, and nodules, and cells, and corpuscles; and here, as in some places where he has struck off too far from the proper sphere of his treatise, he sheds such a flood of ink, that we cannot see to follow him. On the treatment of this affection he is very meagre and deficient; of cod-liver oil he neither mentions the employment, nor the very interesting results which have followed the use of the different preparations made from walnut leaves, as related by M. Negrier and others.

In conclusion, we regret to say that we are disappointed in Dr Coley's work as a whole. What has injured it, we think, is the attempt of the author to put too much into it; and hence, having wandered to matters which a treatise on this department of medical practice is not required to embrace, he appears in some places rambling, obscure, or deficient. Although his work contains so much, it does not supply that desideratum in the English language, of a complete and accurate work on the diseases of children. We have no work like Rilliet and Barthez, or Schnitzer, and Wolff. Still, though we are disappointed in the treatise of Coley, we do not hesitate to say, that medical men in the country, who are at a distance from public libraries, and have not the means of consulting

other works, will find Dr Coley's treatise a serviceable guide in practice.

Dr HOOPER'S *Physician's Vade Mecum*; or, a *Manual of the Principles and Practice of Physic*. New Edition, considerably enlarged and improved, with an Outline of General Pathology and Therapeutics. By WM. AUGUSTUS GUY, M.B., Cantab., &c. London, 1846.

WE consider this one of the best manuals extant, and can confidently recommend it to the student of medicine. Its plan is excellent. The first part contains an outline of general pathology and therapeutics, and the second a short description of special diseases. We can observe in this edition many improvements on the former one. For instance, the endeavour to explain the early phenomena of inflammation by elasticity of the capillary vessels is abandoned, and the more rational doctrine of a vital contractility substituted for it. Still there are many subjects which have not been brought up to the present state of knowledge regarding them. The processes of resolution, suppuration, gangrene, &c. are very erroneously described. There can be no excuse for the editor having omitted the more modern doctrines on these points, when the numerous works and memoirs lately published could so easily have furnished the matter. The division of morbid changes, under the heads of abnormal nutrition and morbid secretions, shows that the editor has not very clear notions on this subject. We do not agree with him either, when he says (p. 105) that the best pleximeter is formed by one or two fingers of the left hand. We are disciples of Piorry, and deny that percussion can be performed with *exactitude* by the fingers alone.

We could find fault with the description of several diseases. That of phthisis pulmonalis is, in our opinion, very defective. Under the head of physical signs, we are told that the incipient stage is known by dulness on percussion over the clavicles, and in the supra and infra-clavicular regions, &c. If students or others are unable to detect phthisis until they elicit dulness (with their fingers, too) at the places indicated, the disease will no longer be incipient. This is a sign of confirmed and not incipient phthisis. On the other hand, what are enumerated as the signs of confirmed phthisis serve rather to indicate its advanced stage. It is of more importance to notice this, because, under the head of diagnosis, whilst great stress is laid upon the pulse, headache, and palpitation, nothing is said upon the necessity of paying attention to the prolonged expiration, harsh respiratory murmurs, increased vocal resonance, &c., &c. —undoubtedly the true diagnostics of the disease in its incipient stage. Under the head of causes, we find enumerated the signs of a scrofulous diathesis. What have these to do with the causes of

phthisis? In fact we have no rational cause given, and the treatment, in consequence, is most unsatisfactory,—consisting of mercury and iodine, to procure absorption of the tubercle; change of air, local bleedings, vegetable food, &c.—perhaps the worst kind of treatment as a general rule that could be proposed. Porrigo, we are told, consists of small contagious pustules. This is incorrect. The cryptogamic nature, on the other hand, is not alluded to. It is said that the treatment of lupus must be chiefly local,—an error that we are glad to think is being gradually exploded from practice. But we have written long enough in this vein. We repeat, that the book is a good one, and, on the whole, well adapted for those desirous of obtaining an elementary knowledge of the principles and practice of physic.

Manual of Operative Surgery, based on Normal and Pathological Anatomy. By J. F. MALGAIGNE. Translated from the French by FREDERICK BRITTAN, A.B., M.D., &c. London, 1846.

THE excellent and well known work of Malgaigne is now rendered accessible to the English reader by means of Dr Brittan's translation. It is certainly one of the best books published on operative surgery. Whether English literature required such an addition, is a question that might be disputed; but the task being accomplished, we can conscientiously compliment the translator on his mode of performing it. The wood-cuts and notes add much to the value of the work.

Part Third.

PERISCOPE.

PHYSIOLOGY.

ON THE PRINCIPLE OF VITAL AFFINITY, as illustrated by recent Observations in Organic Chemistry. By DR ALISON, Professor of the Practice of Physic in the University of Edinburgh.

THE objects of this paper are, *first*, to vindicate the use of the term affinity, and assert the principle which that term is intended to express, viz. that in living bodies ordinary chemical affinities undergo a certain change or modification, either by the addition of affinities peculiar to the living state, or the suspension of some of those which act elsewhere; and, *secondly*, to attempt, from a review of facts recently ascertained, an exposition of the laws, according to which these modifications of ordinary chemical affinities take place, and a discrimination of those changes in living bodies, which may be ascribed to them.

In proof of the first of these points, the author referred particularly to the facts known as to the formation of starch, or its allied compounds, from carbonic acid and water by an action of certain parts of living vegetables under the influence of light, whereby the carbonic acid is decomposed and oxygen evolved ; maintaining that this change, essential to the condition of all organized bodies, is so distinctly at variance with the ordinary chemical relations of carbon and oxygen, and even with those which show themselves in other parts of vegetables in the living state, and in all parts in the dead state,—that we are equally bound to regard it as a strictly vital phenomenon, as the contraction of a muscle on a stimulus ; and that we cannot rightly apprehend either phenomenon unless we regard them as dependent on certain laws of vital action or of vitality.

On the second point, he observed, that the physiologist is concerned only with those formations and resolutions of organic compounds which take place in the interior of living bodies, and that, premising that the first introduction of every species of organized being into the world must have been by a miraculous interposition of Divine Power, beyond the limits of scientific inquiry, the objects of investigation in this department of physiology appear to be more definite, and the strictly vital affinities which now operate, from the commencement of the life of vegetables to the death and decomposition of animals, to be fewer and simpler than had generally been supposed.

I. The first kind of action which may be ascribed to vital affinity, he described as the mere selection and retention, by certain portions of a solid, of certain substances, whether elementary or compound, already existing in a fluid that is brought in contact with it, or what is called by some a chemical filtration. This power is exemplified in living vegetables, particularly in the appropriation by them of some of the earthy and saline matters which are brought to their roots, and the rejection of others ; it is more strikingly seen in the development of the lower classes of animals, especially those of the radiata and mollusca, which have horny or earthy integuments ; and it is certainly the chief power concerned in all those functions of animals, to which we give the names of absorption, secretion, and even nutrition.

In regard to this simplest form of vital affinity, the following points seem ascertained :—

1. That it is usually, if not always, performed in a perfect organized being, by an attractive agency of living or growing cells, which seem always to perform the double office of extracting from the nourishing fluid the material of their own growth and reproduction, and extracting also the fluid or solid matter which they are to contain, or with which they are to be incrustated.

The matters thus consolidated from a fluid in which they previously existed, by a simple process of attraction and increased aggregation, not precipitated by any chemical separation of their component parts, assume the forms peculiar to each organised body to which they are thus added, but retain that peculiarity which in organic matter exists only in fluids,—that the smallest portion of them contains all the chemical ingredients which belong to the mass, and thus any crystalline arrangement is prevented.

2. That no difference, of form or of composition, can be detected in the different cells of an organized structure, to explain the difference of the matters which they thus extract ; and that, in the first development of organized beings, the difference of selecting power exercised at different points of the germinal membrane, appears to be determined by no other condition than their *position*.—just as different portions of nervous matter, differing only in anatomical position, exert perfectly different vital powers, or, in the state of disease, (*e. g.* of inflammation), peculiar attractions and repulsions appear to exist, for a time, simply at particular spots of the vascular system.

The attractions by which living cells thus appropriate to themselves portions of contiguous fluid, are obviously analogous to those by which even inorganic porous substances attract different fluids with different degrees of force, and

thereby produce the phenomena of endosmose and exosmose, but are broadly distinguished from them by the peculiarity of the changes thus effected, by their infinite variety, even in different parts of the same structure, and by their uniformly temporary existence.

II. The actual transformations, or new arrangements of the chemical elements which take place in living bodies, and are peculiar to them, are illustrated by the examples of the formation of starch from water and carbonic acid, oxygen escaping ; and of the formation of fat from starch, carbonic acid and water escaping.

It appears to be in the *cells* of organized structures that those transformations are likewise effected ; and as the action of cells in simply extracting portions of the nourishing fluid, is analogous to the physical principle of endosmose, so their action in these metamorphoses may be illustrated, but by no means explained, by comparing them to those chemical actions to which the term catalysis is applied.

Two general observations may be made on both these modifications of the power of vital affinity,—*first*, that they obviously *transferred* from the portions of matter already endowed with them, to those which, in the growth of living beings, are added to, or substituted for, those portions of matter ; just as muscular fibres already existing, communicate to all the matter which is added to them by the process of nutrition, the same contractile properties which they themselves possess ; *secondly*, that every portion of matter to which any such vital properties are imparted, appears to enjoy them only for a short time ; losing them so rapidly that a vital process of absorption and excretion is necessary, throughout the whole existence at least of animals, to eliminate from their bodies materials which have lost these properties and reverted to the condition of dead matter.

After stating these general principles regarding vital affinities, the author made some more special remarks on the most fundamental of all the changes in organized beings which may be referred to their action, viz. the formation of starch and its allied compounds from carbonic acid and water under the influence of light, and consequent purification of the atmosphere ; and he insisted chiefly on the following points :—

1. That this change is probably gradual ; the carbonic acid being taken into the juices of the plant and slowly decomposed there, more or less completely, according to circumstances, whence result not only starch, or its allied compounds, but likewise different organic acids and various oils.

2. That the formation of sugar in plants is probably to be regarded rather as a simply chemical action than as a result of vital affinities ; or that it is a first product of the decomposition of starch by the agency of water and oxygen.

3. That, on the other hand, the formation of lignin, containing more carbon and less oxygen, from starch or from cellulose, and from the carbonic acid and water brought into the cells, appears to be the result of a strictly vital affinity, strongest at the period of greatest vigour of the plant.

4. That in this, as in other of the metamorphoses which take place in living beings, and which he proposes farther to examine, the carbon, thus originally fixed on the earth's surface from the atmosphere, appears to be the chief material employed by nature for the formation of all organized structures, and to be invested, for that purpose, with peculiar and transient vital affinities, while oxygen hardly appears to exert any chemical powers in living bodies, different from those which it manifests elsewhere ; but is taken into the interior of all living bodies, only that it may support the excretions which are continually going on in them, and resolving organized into inorganic matter ; and thus, that it gradually resumes its power over the carbon which had been temporarily separated from it for the formation of the animated part of creation.—*Proceedings of the Royal Society of Edinburgh, 1846.*

MR PAGET ON THE THEORY OF CELL-DEVELOPMENT.

Mr Paget has been led to doubt the sufficiency of the accepted theories of development from recent examinations of tumours and other morbid growths. Their structure seems peculiarly adapted for testing a theory of cell-development ; for they are, doubtless, obedient to the same general laws of formation as the healthy structures are, and, in the unequal and often rapid growth of the several parts, it could hardly happen but that in many specimens all the phases would be seen, through which their structures pass towards their fully developed state. But in numerous examinations, he has not found a single example in which a cell has appeared to be forming, or formed, around a pre-existing nucleus ; or one in which fibres have appeared to be formed out of nucleated cells ; or one in which nucleated cells have appeared to constitute a stage towards any form of higher development. On the contrary, he has found many instances of rapidly growing structures composed of large collections of fibres without a nucleated cell among or near them ; others with abundant nucleated cells, but scarcely any free nuclei or granules, and nothing like a cell incompletely developed round its nucleus ; and again, others (and those of especially rapid growth) with no cells at all, but composed almost entirely of corpuscles like nuclei or cytoblasts.

From these and other observations, he is disposed to think that the ordinary (and not the exceptional) mode of development of fibres is, not through nucleated cells, but from a structureless or dimly granular substance which is first *marked*, and then broken up into fibres. There is good evidence that the cytoblasts which are usually or always embedded in this substance, influence the development of the fibres ; and though he cannot tell how they do so, yet it is certainly not by conversion of themselves into fibres ; they shrivel and disappear as the fibres increase, and become more perfectly formed.

Mr Paget thinks it will be found that, in morbid growths, the nucleated cell is always a terminal, not a transitional form ; for in certain tumours in which the best-formed nucleated cells are found, *e. g.* the epithelial tumours and some examples of medullary cancers, there are no higher forms found, not even imperfect fibro-cellular tissue, except in small quantity about the blood-vessels. Corpuscles, having the characters of nuclei or cytoblasts (to adopt still the usual names), appear to be the really energetic bodies in the growth and determination of these morbid structures ; they are found in some tumours so abundantly, and so unmixed with nucleated cells, that their power of multiplying and assimilating cannot be doubted ; and it is in some of these tumours also that, apparently under the influence of the cytoblasts, the most perfect fibro-cellular tissue is ultimately formed. What he has seen also of the development of these cytoblasts, leads him to agree with that view of the development of nuclei generally, according to which they are described as formed, not on a pre-existing nucleolus, but out of granules collected in a dark or dim mass of the proper size and shape, which then clears up by the formation of a membranous wall and transparent fluid contents, with, in some cases, one or more persistent granules holding the position of nucleoli.—*British and Foreign Medical Review*, July 1846.

The view thus recently brought forward by Mr Paget, seems to us to have been completely anticipated by Dr J. Hughes Bennett. Of this our readers may judge from the following passage :—"Filaments are deposited in the *liquor sanguinis* of buffy blood, which may be seen forming under the microscope independent of cells, as noticed by Gulliver and Addison. Further, the clot frequently presents a purely fibrous structure ; and there is every reason to suppose, that this fibrous and filamentous texture is subservient to union by the first intention, independently of the formation of nucleated cells. But although the proposition, that every filament is the result of cellular development requires modification, we have no doubt that all the compound structures, and

the essential phenomena of growth, are mainly attributable to the transformation of nucleated cells. Instead, however, of supposing that this alone constitutes the process of formation, facts, in our opinion, indicate that this is combined with the occasional production of membranes, granules, and filaments, by means of simple deposition. Perhaps, also, it may ultimately be seen, even more decidedly, that the theory of deposition brought forward by Mandl, should be more or less conjoined with the beautiful doctrine of cyto-genesis, elaborated by Schleiden and Schwann. If so, future researches must determine the limits which should be ascribed to each, in order that our ideas of formation and growth may be rendered more universally applicable, than by adopting one view to the exclusion of the other."—*Treatise on Inflammation*, p. 16, Edinburgh 1844. It is worthy of remark, also, that Lebert, in his recent admirable work, positively states, that the fibres of chronic lymph are formed by condensation, and not by the transformation of cells.

CENTRAL TERMINATIONS OF NERVE FIBRES.

Mr Paget states that he has recently had occasion to confirm the observation originally made by Dr Lonsdale (now of Carlisle), who found in two cases of anencephalous monsters, that the nerve fibres in the truncated portions of the fifth and other nerves, which hung unattached in the base of the skull, formed loops. In a mature foetus, whose cerebro-spinal axis was truncated at the medulla oblongata, the fibres of the loose hanging ends of the fourth and fifth nerves appeared forming loops, exactly like those figured by Dr Lonsdale.—*Mr Paget's Report, British and For. Med. Review*, July 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

DR LEBERT ON INFLAMMATION OF THE LUNGS.

THE afflux of blood which constitutes the first stage of pulmonary inflammation, is succeeded by a greater or less constraint in the capillary circulation, and at last by stagnation of greater or less extent. The consequence is a rupture of some capillaries, by which is explained the presence of blood-globules in pneumonic expectoration as well as in the products of exudation. There is also a transudation of the liquor sanguinis into the intervesicular tissue and into the pulmonary vesicles. In this effusion, as well vesicular as interstitial, are formed granular globules mingled with much serous fluid, colouring matter of the blood, and blood globules. These elements, in the aggregate, constitute the second stage of pneumonia, the red hepatization, or, as it is better termed by Andral, red *ramollissement*. These elements may be re-absorbed, so that, at the end of some weeks, the lung may return nearly to its healthy state. But when the capillary stagnation in the lungs increases, and there is incomplete re-absorption and incomplete restoration of the permeability of the pulmonary vesicles as well as of the capillaries, there is produced not only a local interruption of the circulation, but an impediment to part of the blood undergoing the important changes of oxygenation, decarbonization, and aqueous exhalation. The exudation then changes its nature, and from being granular and sero-sanguinolent, it becomes purulent. The pus, in this case, infiltrates a part of the pulmonary tissue, so as to be either a lobar or lobular infiltration. Through the capillaries of the lungs, the pus gets readily into the current of the circulation: why, it is not easy to say; but purulent infiltration of the lungs is almost uniformly fatal.

Hepatization, or the red *ramollissement*, does not always go on either to resolution or to suppuration; then the liquid part of the effusion is partially absorbed, the granular globules remain, but in a much higher degree of con-

sistence; the vessels continue gorged with blood, partly coagulated; the *ramollissement* is then replaced by a state of augmented consistence, or carnification of the lung supervenes, which is nothing else than a red hepatization prolonged, with a diminution of the fluid part of the exudation.

In rare cases, when the afflux of blood in pulmonary inflammation has ceased, and a certain number of vessels, compressed in part by the exuded mass, has become impermeable, a chronic pneumonia is observed, usually presenting a rose-yellow tint; a state which may be termed *yellow* hepatization. It is accompanied by an augmentation of consistence, often presenting subacute lobular inflammations disseminated in its tissue, and showing, as matters of exudation, small granular globules resembling pyoid globules, large granular globules, fibrinous coagulations, and even at times fibro-plastic elements.

When, again, the matter of effusion is rich in fibrine, and contains but very few globules mingled only with some pigmentary elements, we observe a grey induration of a part of the lungs alike consequent on inflammation.

Thus we find connected with pulmonary inflammation all the stages of transition between an afflux of blood, stagnation, and even anæmia; between a tint almost white, and the deep red; between the most marked *ramollissement*, and an almost fibrous induration; and these several states, very different from each other as they appear at first sight, have most obvious and easily demonstrable physiological relations with each other.—*Physiologie Pathologique, tome i.*

We have extracted the above passage, somewhat abridged and necessarily mutilated, from Lebert's treatise, of the general portion of which we gave a full analysis in our last number; and we propose to present our readers with other passages from the same work in our next two or three numbers; for a further study of the book, so far from leaving on us the impression that we had overpraised it, has served to convince us that it is of even greater merit than we represented; and, in particular, that it contains more than the average amount of original observation usually found in a work of such extent, treating of diseased states, both generally and in detail, so often discussed as those falling under inflammation, tuberculization, and cancer. Of the section of the work on tubercle an abstract has already appeared in the *Periscope* of this Journal for October 1844, taken from Müller's Archives, in which this portion of our author's researches was originally published; and we cannot help citing the high testimony of Professor Vogel to the excellence of Lebert's labours in this department. In his recent work on Pathology (*Pathologische Anatomie des Menschlichen Körpers*, p. 253), he (Professor Vogel) speaks of "the very valuable work of Lebert, in Müller's Archives, indisputably the best that we at present possess on the histological relations of Tubercle."

CASE OF RUPTURE OF THE STOMACH FROM THE RAPID DEVELOPMENT OF GAS AS A CONSEQUENCE OF ACETOUS FERMENTATION OF ITS CONTENTS. By JAMES CARSON, M.B., Liverpool.

Evan Thomas, aged 20, a sailor of temperate habits, made a hearty meal of coffee, with bread and butter, of which his master partook, at six P.M., July 3, 1844. Shortly afterwards he began to suffer intense pain in the abdomen, which was constant but somewhat increased at intervals. At nine P.M. he entered the hospital. He was suffering much, and rolled about the floor in agony. The abdomen was hard, contracted, and tympanitic, not much swollen, but tender on pressure; countenance anxious; features collapsed; surface of body cold; pulse small and feeble; retching, no vomiting. His bowels had been open during the afternoon. *To have wine of opium, and tr. of hyoscyamus, of each ʒss. in ʒj. of camphor mixture.* A warm water injection was given, but soon after returned without fæces. At eleven P.M. the pain was no better; the pain constant and excruciating. Occasionally he sits up in bed, and rotates his body, to show, as he says, that there is something loose in his belly. A

sound is produced as if of fluids in the intestines; voice strong; tongue slightly dry and furred; vomits occasionally a little fluid; pulse 76, of tolerable strength; passed flatus down without relief. About eighteen ounces of blood were removed from the arm in the erect position. The pulse was sensibly affected by the bleeding, but no mitigation of the symptoms took place. A turpentine injection was given by the long tube without effect. A stimulating draught of ether, assafoetida, and cinnamon, was administered without relief. A large blister was then ordered to the abdomen; and a pill containing two grains of calomel and one grain of opium, to be taken every hour. No abatement took place in the symptoms, and he died at nine A.M. on the following morning. At the moment of dying, extensive emphysema took place in the neck, upper parts of chest, particularly under the breast, and extended down to the abdomen.

Inspection, performed at three P.M. on the same day.—On opening the peritoneal cavity an immense and forcible escape of gas took place. It contained a quantity of dark green-coloured effervescing fluid, of a very pungent acid smell, which gave a sharp tingling sensation to the hands, after they were for a short time immersed in it. At the lower part of the abdomen, and in the pelvis, there was a very large quantity of froth, as if from rapid fermentation. No effusion of lymph or other sign of peritonitis was observed. The stomach was greatly distended, and pushed up by the diaphragm to a level with the nipples. On taking hold of its anterior surface and raising it, a quantity of gas escaped from a large opening, capable of admitting three or four fingers, situated apparently near to the pylorus, but which was afterwards found to be at the superior and posterior part of the great extremity, about three inches from the œsophagus. On cutting open the stomach the whole of the mucous membrane lining the great extremity was intensely injected, of a deep red colour, much softened in texture, and covered with a thin layer of reddish mucus. The edges of the opening were regular, as if torn from over distension of the viscus. The stomach contained several ounces of pultaceous matter. The intestines were not much distended, but the mucous membrane of the small bowels, from the stomach to the cæcum, presented one continuous appearance of deep red injection resembling velvet. The mucous membrane of the great bowel presented the same appearance, but not so uniformly nor to so great a degree. About 18 inches of the rectal end presented a normal appearance. A number of round worms (*L. teres*) were found in the small intestines, some of which were alive. The other organs in the abdomen and chest were healthy, with the exception of old pleuritic adhesions, and contraction of the lungs, owing to the tympanitic distension of the abdomen.

Dr Brett made a chemical examination of the stomach, its contents, and of the fluids in the cavity of the abdomen. The contents were extremely acid, from the presence of a large quantity of acetic acid. The slightest possible trace of arsenic was discovered, but so slight that Dr Brett did not consider it sufficient to enable him to give an opinion that arsenic was the cause of death. An open verdict was returned, that deceased died of inflammation and perforation of the stomach, which might have been produced by arsenic or by natural causes—which of the two there was no evidence to prove.

Dr Carson regrets that indecision, and too slight an apprehension of the dangers that might result from an over distension of this organ led him to depend upon less efficient means of dispersing the accumulated gas. It is well known that rupture of the stomach often takes place in ruminating animals, from the development of carbonic acid gas, from acetous fermentation of the contents of the paunch, after feeding upon fresh clover. This, however, is the first case in which death in the human subject has resulted from gas, the product of acetous fermentation. It is improbable that the slight trace of arsenic discovered after death was the cause of the affection.—*Ibid.*

CASE OF HÆMATEMESIS, FROM RUPTURE OF A CARDIAC BRANCH OF THE CORONARY ARTERY OF THE STOMACH.

Leroy Kivey, a sailor, aged about 27, entered the Northern Hospital, on the evening of November 5th, having vomited twice during the day a large quantity of blood. After admission, he again vomited about a quart of red blood, not frothy and mixed with mucus. At ten o'clock P.M. he was found lying upon his right side, with a pale exsanguine complexion. His face, neck, and shoulders were covered with a clammy perspiration. There was no pain upon pressure at the epigastrium: The pulse was not perceptible at the wrist, and nothing but a slight fluttering movement of the heart was distinguishable by the stethoscope. The expression of his countenance and attitude indicated great prostration. He was ordered immediately 25 drops of laudanum and ʒss. of chloric ether in camphor mixture, and 10 drops of laudanum, and 20 of chloric ether every hour during the night; also a turpentine enema, if he should rally. A mustard cataplasm was applied to the abdomen. On the morning of the 6th, the pulse was considerably improved. He had rallied during the night, but there was still extreme prostration. The turpentine injection had brought away a considerable quantity of black tarry matter. He had again vomited a large quantity of dark-coloured clotted blood. He was ordered to take every three hours a mixture composed of quinine, gr. ij.; tr. opii. m. vj.; acid. sulph. dil. m. xij. mag. sulph. ʒj; water ʒj. During the day until evening, he vomited the same kind of blood. From six o'clock until three A.M., he was free from vomiting, but at this period it returned. He sunk during the night, and expired the following morning.

Inspection thirty Hours after Death.—The thoracic viscera were healthy, with the exception of engorgement of both lungs posteriorly, but more especially of the right, from his having generally, while in the hospital, lain upon that side. The large intestine was distended, and contained black and partly digested blood. The small intestines were contracted; neither they nor the stomach contained the smallest portion of blood. The mucous membrane of the latter organ was covered with a thick glairy mucus, and was in large patches throughout of a deep chocolate colour. Dr Sunnan examined it very minutely, and observed a red spot, from which a reddish coagulum slightly projected. On trying to extract this, it was found of considerable length and tenuity. The aperture through which the hemorrhage took place was small, about the size of a barleycorn, round, and situated about a quarter of an inch from the termination of the œsophageal mucous membrane. On dissection, it was found to communicate with the superior branch of the *coronaria ventriculi*, where it anastomoses with one of the œsophageal arteries. The size of the vessel was sufficient to admit a good sized pin's head. With this exception the mucous membrane appeared perfectly healthy. The other abdominal organs appeared to be tolerably healthy.

The reporter remarks, that in all the cases of hæmatemesis he has seen, excepting those depending upon ulceration of the stomach, the blood vomited was only red at first, and at each succeeding vomiting became darker and darker, mixed with clots. This would lead to the supposition that the exudation of blood is comparatively soon stopped, and that the indications of treatment are early to attempt, by proper support, to prevent the patient from sinking. In the present case, to have by stimulants excited the stomach might have been followed by a removal of the plug of lymph, and a return of active hemorrhage. Dr Duncan pointed out to him a defect in the treatment—the omission of injecting blood into the veins, and he feels himself bound to state that such treatment upon the Sunday might have saved the life of the patient.—*Ibid.*

In a case somewhat similar to the above, we found the stomach distended with blood, which was so firmly coagulated that, on being turned out, it presented a perfect mould of the size and form of the organ internally. On examining the mucous membrane, it at first appeared healthy; but on using a

common lens, it was seen to be sprinkled all over with small ulcerations, the largest of which was about the tenth of an inch in diameter. No rupture of a vessel could be found, though carefully looked for.

ON THE PATHOLOGY AND THERAPEUTICS OF APHONIA. By JOHN BISHOP, F.R.S.,
Surgeon to the Northern Dispensary, London.

It is well known that many persons, especially females of a delicate and relaxed habit, and otherwise of a nervous temperament, become affected with aphonia on being exposed to cold or humid states of atmosphere. Some labour under loss of voice during the whole winter, whilst in others of a stronger constitution, the malady does not often continue longer than six or eight weeks. Mr Bishop points out that loss of voice depends on several causes, and ably shows how a knowledge of the pathology of the affection is essential to its proper treatment.

When any stretched membranous surface, such as the head of a drum (which is well known to be composed of animal skin), is subjected to a very moist state of the air, it becomes relaxed and inelastic; such also appears to be the effect of moisture on the mucous membranes and several other animal tissues. Now, it is found that, if we take a reed, and place it in a membranous tube, and cause it to vibrate by passing a current of air over its tongue, the reed will continue to sound as long as the membranes preserve their tension and elasticity; but the moment they are moistened and become relaxed, it ceases to sound, and will not, by any means that we can employ, again produce a sound whilst it is in contact with the moist membranes; but as soon as they become dry, and resume their elasticity, the reed will again yield its sounds as before. As the vocal ligaments are placed under circumstances analogous to those of the reed, we can easily perceive why they should lose the power of producing sounds, when the membranes of the vocal tube either lose their elasticity, or cannot acquire, from the connected muscles, the tension proper to them in their normal condition. There are several causes, however, independently of the hygrometric state of the atmosphere, which tend to relax the fauces and soft parts adjacent to the larynx, such as temperature, nervous excitement, and over exertion of the vocal organs. These require different kinds of treatment.

In many cases the peculiar state of the mucous membrane and adjacent parts appears to be of an asthenic character; on which account depletion, counter-irritation, and other modes of antiphlogistic treatment, do no good, but generally do harm; and stimulants and astringents, applied locally, are the only remedies which tend to restore the mucous membranes to a healthy condition. A strong solution of lunar caustic, applied to the fauces with a camel's hair brush, produces the most beneficial effects, and may be used in preference to any other remedy. Gargles of capsicum also do good, but are certainly not so efficacious as the solution of nitrate of silver. When the relaxed condition of the vocal tube arises from over-exertion in speaking, singing, &c., the same treatment is highly beneficial, and complete rest of the vocal apparatus is indispensable for the recovery of a healthy control over the voice.

When aphonia arises from nervous excitement, we must look for the origin of the affection beyond the mere office of the soft parts of the vocal tube. This condition may often be traced to the nervous centre, most commonly arises from an asthenic state, and is often associated with an hysterical disposition. In some hysterical cases, however, an opposite state to that of aphonia presents itself. A patient was placed under Mr Bishop's care, who uttered a constant involuntary bark, like that of a dog, very loud and discordant. No benefit can be expected to result in such a case from merely local treatment. Sudden alarm and over-excitement will often cause aphonia. When this is produced by an altered state of the nervous functions, galvanism is said to be beneficial.

The more aggravated forms of aphonia, such as those arising from diseases of

the larynx or morbid conditions of the brain, most commonly baffle every method of treatment hitherto devised.—(*Transactions of the Medical Society of London*, 1846.)

OBSERVATIONS ON POST-PHARYNGEAL ABSCESS. By Dr BESSEMS.

Post-pharyngeal abscess, or abscess behind the posterior wall of the pharynx, has not, till lately, drawn much attention from practitioners. Within the last five or six years Fleeming, Moudiere, Rodrigues, and Berard, have published on the subject. This kind of abscess is either idiopathic or symptomatic; the latter is dependent on caries of the highest cervical vertebræ, and can hardly be mistaken. The idiopathic abscess, on the contrary, is sometimes difficult of diagnosis. To the idiopathic abscess the following observations are limited. This kind of abscess is confined to no period of life; but, as far as the cases hitherto recorded show, it is most apt to occur in early infancy, as from the age of a few weeks up to four years.

It has been observed to follow wounds or punctures, as from a wound of the back of the neck, and from puncture in swallowing a sharp-pointed bone, the irritation produced by a difficulty in deglutition, inflammation of the mucous membrane of the pharynx, dentition, and to have been connected with rheumatic disease, erysipelas, and also inflammation of the contents of the cranium.

It begins at different points in the posterior wall of the pharynx, and may be circumscribed or diffused. Above, the pus is confined by the petro-pharyngeal and occipito-pharyngeal aponeuroses; and in front by the deep layers of the cervical aponeurosis. But, notwithstanding the last-mentioned obstacle, the abscess sometimes extends to the sides of the neck, forming there tumours more or less voluminous. Beneath, there is nothing to confine it, so that it may even descend along the gullet into the posterior mediastinum.

This kind of abscess may be either acute or chronic, the former being more frequent. In one recorded case, however, the disease proved fatal by suffocation, after lasting for five months; and in another, which Desault cured by evacuating the pus, seventeen months had elapsed from the first appearance of the swelling; in a third, cured by Dr M. Wade in the same manner, the patient had suffered severely from the disease for three months.

In the inflammatory stage pain, not always severe, impeded deglutition, most frequently redness of the pharynx, great stiffness of the neck, and even projection of the posterior wall of the pharynx, are present. Sometimes this last symptom is better ascertained by exploration with the finger than by inspection. When the stage of suppuration arrives, besides the ordinary constitutional effects of suppuration, increased difficulty of deglutition, rejection of fluids by the nostrils, noisy breathing, cough, alteration of the voice, and even symptoms imitative of croup arise. When the seat of the pus is low, the difficulty of discovering the tumour is great. By external examination of the neck, much assistance is often obtained, and a displacement of the larynx is at times discoverable.

The difficulty of the diagnosis is much increased by the tendency to disorder of the stomach and of the brain under this disease of the pharynx. In one of the fatal cases recorded—in an infant, a year old—the disease set in with convulsions, and the true nature of it was not discovered till after death, though repeated examinations of the throat and neck were made, and it was discovered by the stethoscope that the lungs, bronchi, and trachea were free from disease. This disease was finally believed to be in the larynx, and tracheotomy proposed, which was refused by the parents. In this case the introduction of the finger would probably have discovered the nature of the disease in time to have saved the infant's life.

Nothing but an attentive examination of the pharynx can prevent this disease from being confounded with croup. In every case then resembling croup the pharynx should be carefully explored, and this is more particularly neces-

sary where no false membrane has made its appearance, or when the disease has shown the same intensity of symptoms for several days without a marked progress. In post-pharyngeal abscess, the difficulty of deglutition precedes that of respiration, which is not the case in croup, as there is no difficulty of deglutition unless where that disease is combined with cynanche tonsillaris; in post-pharyngeal abscess, pressure on the larynx increases the labour of the respiration, which does not occur in croup.

It appears that this disease has been mistaken also for oedema of the glottis; but in the latter affection the difficulty of respiration, as compared with the facility of expiration should be a sufficient ground of distinction, since in the former both are alike impeded.

When post-pharyngeal abscess assumes the chronic form, numerous errors of diagnosis are apt to occur; it has even been mistaken for polypus of the nose. It is enough to indicate the possibility of such errors to prevent their recurrence.

In some cases the abscess opens, and the pus being discharged by the mouth the patient recovers; in others suffocation takes place by the opening of the abscess; in others death occurs by asphyxia, owing to the compression produced by the size of the abscess; and lastly, in protracted cases, the fatal event is the consequence of defect of nutrition, owing to the interruption to deglutition.

When the abscess is recognised in sufficient time, and opened artificially, the patient seldom fails to recover.

The treatment in the inflammatory stage is obvious. Several methods of opening the abscess have been recommended, as the nail, the finger, or the handle of a wooden spoon. A bistoury, wrapt round with linen, or Petit's pharyngotome is often necessary. In some instances the abscess has to be opened in the neck, in which case the surgeon must proceed with much caution.—*Gazette Medico-Chirurgicale*, 16 and 23 Mai 1846.

We have abridged the above memoir, because we believe that too little attention has hitherto been directed to chronic abscess of the pharynx, and consequently, that in obscure cases the disease may sometimes be overlooked or mistaken for other affections. It cannot, however, be said, as our author seems to intimate, that acute inflammation of the pharynx, and the occasional consecutive suppuration have been overlooked by medical authorities, though this form of cynanche has been sometimes erroneously represented as almost uniformly of a trivial character and free from danger. The acute inflammation has been described from the earliest times, and for the most part its severity, and occasionally dangerous character, have been properly pointed out.

NEW CAUSE OF PHTHISIS PULMONALIS.

M. Wanner, physician at Salbin, addressed a note to the Academy of Sciences relative to phthisis pulmonalis, which he denominates *calculous pneumonia*. According to him, pulmonary tubercles are attributable to the presence of mineral matters which are found deposited in excess in the lungs. He had heard, that in Solognia there were no phthisics, and, on visiting that country, he found the statement correct. There are no phthisical or scrofulous persons, nor children affected with atrophica mesenterica, except in one part of the district only, and he attributes the absence of these affections to a want of lime, a mineral not met with in that country under any form.—*Gazette Médicale*, 4th July 1846.

This idea is directly opposed to one we read of some time ago in a weekly journal, where the writer, after noticing the fact that tubercle, when cured, was always transformed into cretaceous masses, recommended lime water to favour its more rapid degeneration.

SURGERY.

ON THE FORMATION OF ABSCESS AFTER COMPOUND FRACTURES OF THE LONG BONES,
By DR S. LANGIER, Surgeon to the Hôpital Beaujon, Paris.

THE author commences this memoir by showing the similarity, as to the nature of the injury done to the soft parts, of fracture by *contre-coup* of the long bones, and luxation of their articular extremities. In each, a portion of the bone, constituting a lever of variable length, and under the influence of variable force, is dislodged from its normal position, and, in its destructive course, traverses the soft parts to a greater or less extent. This displacement cannot be effected without considerable disturbance of the surrounding parts; and particular attention has always been paid to the injury inflicted by the articulating head which has been displaced, or by the fractured extremity. In this way the laceration of the articular capsule, of the muscles and integuments, and of the vessels situated in the track of the displaced bone, have been pointed out and appreciated; but little or no regard has been paid to the violence suffered by the soft parts in contact with the bone, and situated opposite to the parts in the direction in which the displaced extremity is forced. To the injury done to the soft parts in this situation, which he considers of a very severe nature, and frequently the primary cause of death, the author attaches much importance, and states that the deep abscesses, which form so frequently consecutively to compound fractures and luxations, have their seat constantly in the situation referred to. The laceration of the soft parts here is very extensive, and in the event of abscesses forming at this point, from their being situated so deeply, and being so far removed from the external opening, extensive accumulations of purulent matter are very liable to take place.

The author instances, as an example of this injury, a fracture by *contre-coup* of the leg, which usually takes place at the junction of the middle with the inferior third of the tibia, the obliquity of which is generally from above, in an inner and downward direction. Supposing the upper fragment of the tibia has wounded the integuments, and projects externally to the extent of an inch, the greatest injury inflicted on the soft parts will be found, according to the researches of the author, on the external side of the bone. On the inner side the integuments are perforated, and the extremity of the bone protruding; but above the protruding part, the soft parts remain adherent to the bone. On the outer side, the separation of the soft parts, and the laceration of the cellular tissue, has taken place to the extent of from two to three inches. If complete reduction is not effected, a space between the upper extremity of the fracture and the lacerated parts here indicated, remains, primary union is impossible, and a tedious suppuration is produced. If complete reduction is effected, a sort of cavity remains on the inner side, between the fractured end and the integuments; but the latter being lacerated, should primary union not have taken place, the matter has free exit from the external wound; if the wound has united, and pus has accumulated under the integuments, it soon finds an issue by breaking up the recent adhesions of the external wound. On the outer side, on the contrary, if union of the separated parts has not taken place, as is frequently the case in compound fractures, and occasionally so in simple ones, the suppuration which follows has a tendency to increase the separation. Instead of the matter finding its way to the external wound, even when that has remained open, the pus extends along the course of the tibia, between the bones in front of or behind the interosseous ligament, and an extensive abscess is formed, which has generally run its course for some time before it is recognised. In a similar manner to the example of the fractured tibia, the author states, that primary abscesses, when they form after such an injury, have their seat invariably in fractures of all the long bones, on the side opposite to that where the bone projects; on the posterior aspect of the limb, should the displacement be

forwards; on the external aspect, should the bone have projected internally, and so on. Previous authors have rarely specified the exact seat of these abscesses.

Dr L., in the *Bulletin Chirurgical*, some years ago pointed out the frequency of abscess occurring on the outer side of the dorsal aspect of the metatarsal bone of the great toe, when the head of that bone had been dislocated inwards; and at that time recommended that an incision should be at once made down to the bone on its outer side, for the purpose of preventing purulent collections being formed in that situation, which practice, Dr L. states, he has followed with the greatest advantage. Several cases are recorded and cited by the author, where the adoption of this practice was followed by a speedy cure.

Dr Langier quotes two cases from the "*Gazette Médicale*," one of compound fracture of the leg, where the tibia projected through the external parts on the inner side of the leg, and an abscess, requiring incision, found external to the tibia; the other, of compound fracture of the arm, where the fractured end of the humerus projected to the inner side rather anteriorly, followed by a purulent collection on the opposite aspect of the limb.—*Arch. Gén. de Médecine*, Juin 1846.

In addition to these, we would add one case, which came under our own treatment, of compound fracture of the thigh, where the superior fragment penetrated the vastus externus muscle, and projected through the integuments on the outer aspect of the limb. A large collection of matter formed on the inner side, extending along the course of the femoral vessels, which was evacuated by an opening made above the crossing of the surtorius and adductor muscles.

We look upon this memoir as useful in pointing out the situation where the matter is found most frequently to lodge in such cases, and where a counter-opening will frequently be found necessary to give freer exit to the accumulating discharge. We do not attach so much importance, as the author, to the greater injury done to the soft parts as accounting for the collection of matter in this situation, as to the simple fact that the parts here are at a distance from the external wound, and the shaft of the bone and lacerated tissues in its neighbourhood form a barrier to the free exit of the matter, which is thus apt to accumulate and burrow under the resisting tissues which surround it.

We cannot agree in the propriety of at once making an incision for the purpose of establishing a communication between the bone and external parts on the opposite side of the limb from where the fractured end of the bone has protruded. Our first object, in cases of compound fracture or dislocation, is to attempt to procure union of the soft parts, and thus reduce the injury to the state of a simple fracture or simple laxation, with which the practice of incision proposed by M. Langier is entirely at variance. We think it sufficient that our attention should be directed to this situation, so that, as soon as matter is found to collect there, which cannot be conveniently evacuated by the application of a compress, we may give issue to it by making a counter-opening.

ON THE TREATMENT OF GONORRHOEA. By F. HARRINGTON BRETT, Esq., late Surgeon to the Governor-General's Body Guard, Bengal.

Mr Brett's object is to show that a judicious application of astringents, from the commencement, in gonorrhœa, together with a specific treatment, cure rapidly, and do not, when judiciously employed, produce stricture, as is very generally supposed. His treatment is as follows:—Rest and temperate habits being enjoined, he immediately commences with astringents and copaiba. The astringents he prefers are, nitrate of silver, a quarter of a grain to the ounce, used once only in the twenty-four hours, and the sulphate of zinc and alum, from ten to fifteen grains of each to the ounce; at the same time, the capsules of copaiba are exhibited in large doses an hour after every meal. One large dose of the capsules (five or six) is given, when the patient goes to bed so soon

as he feels himself sleepy. The great object is to prevent the nauseating effect of this highly efficacious medicine; for this purpose it must not be taken on an empty stomach, and if the patient can sleep for an hour or two after each dose, it is highly desirable that he should do so; for the same reason, very little fluid should be taken. A small quantity of jam or jelly may be occasionally taken if nausea occurs. The patient is directed to void his urine very frequently—every half hour or oftener—in ever so small a quantity, previous to which he injects with a very small glass syringe, not so large as a silver Anel's syringe for injecting the lacrymal sac, and containing not more than half a fluid drachm. This is retained for a few moments, and is carried off by the vis à tergo of the urine, now suffered to escape. If so small a quantity of fluid be injected, it is sufficient to reach along the seat of disease, and it is not necessary to compress the urethra beyond. The rash use of injecting, without regard to the quantity and distance, is as dangerous as the unrestrained progress of gonorrhœa itself. Mr Brett particularly insists on the importance of stopping the exit of the urine by compression of the orifice, at the same time that the effort is made to evacuate, by which means the *copabinized* urine rushes into the lacuna, the lacuna magna especially, where the disease also extends.

The author has frequently seen the discharge cease in two days, without the slightest evil consequences; though it is generally necessary to keep up the influence of the copaibine in gradually diminished doses, and the injection of the sulphate of zinc and alum at longer intervals, and of diminished strength. Of course the treatment is inapplicable when a patient has chorder, or other symptoms of acute inflammation. These must first be subdued, by antiphlogistics, diluents, and rest, although it will be well nevertheless to commence with the copaiba.—*Lancet*, June 27, 1846.

We have long been in the habit of thinking with Mr Brett, that strictures are not so frequently caused by astringent injections as is supposed, and that this result, when it does occur, ought to be attributed to the urethritis. The preparation we have employed has been the acetate of lead, one drachm to eight ounces of distilled water—used after passing urine. We have frequently succeeded in cutting short a gonorrhœa in two or three days without any other remedy, and without, as far as we are aware, any unpleasant consequence. We cannot help thinking, that solutions of the nitrate of silver, and even sulphate of zinc, are unnecessary. They are, certainly, often very irritating.

CASE OF POPLITEAL ANEURISM CURED BY GALVANISM. By M. CINISELLI.

[We beg leave to direct the earnest attention of our readers to the following case, and to the researches of M. Petrequin, for the cure of aneurism. Should more extended experience prove the feasibility and success of galvanic puncture in this formidable disease, rational medicine will have obtained another triumph. The more extensive application and usefulness of this plan may even cast into the shade the advantages of the operation introduced by John Hunter.]

The patient, a man of strong constitution and large stature, had been healthy up to the age of seventy, about which time (October 1845) he first perceived a pulsating tumour in the right popliteal space. The rapid increase of the disease soon rendered progression difficult and painful, and by December he was scarcely able to take a few steps in his room. In January 1846, he was admitted into the hospital of Cremona, with a popliteal aneurism of about the size of a goose's egg, occupying the whole of the region, and pulsating strongly in every direction. By compressing the femoral artery, the tumour decreased in size. Complete extension of the leg was impossible. The articular capsule of the knee-joint appeared swollen at the side of the limb, and the pulsations were felt through these swellings, and by the side of the patella. No pulsation

could be discovered on the distal side of the tumour, either in the leg or foot; but the pulsations in these situations were inappreciable in the other limb, although in it the popliteal artery beat more strongly than natural. Both legs were full of varicose veins, and covered by a dry integument, which presented traces of old ulcers. On this account, M. Ciniselli was unwilling to risk the operation of ligaturing the femoral artery, and he wished to try the effects of gradual compression on the tumour, aided by the use of astringents. The indocility of the patient, however, compelled him to desist from this plan soon after its commencement. Having met with the recent researches of M. Petrequin on the subject of inducing coagulation of the fibrinous portions of the blood in aneurisms by means of galvanic action transmitted through needles, he determined to try it. The patient having been placed on his side, and compression made on his thigh, M. Ciniselli introduced four very fine needles into the tumour, two on the inside in a vertical line, taking care to avoid the trunk and branches of the saphena vein; the other two he introduced on the outside, but a little lower in the limb. The first two needles were directed downwards through the tumour, the others, on the contrary, he directed upwards, so that they crossed one another in the tumour without touching each other. This being done, M. Ciniselli next proceeded to increase the compression on the thigh so as to stop the arterial pulsation in the tumour without causing it to shrink. This he considers a matter of importance, as it increases the size of the coagulum formed, and enhances the success of the operation. Connexion with a battery of twenty-one pairs of copper and zinc plates was now established. The galvanic current was transmitted across the tumour through two of the needles, the intensity of the action being increased by the addition of more plates. The application of galvanism was continued twenty minutes. One needle was touched at a time by each of the poles, and the needle changed every two or three minutes, each being touched successively by both poles, and the galvanic current transmitted in every direction through the tumour, so that fibrinous filaments might be obtained, which would interrupt the course of the blood through the aneurism. Each new contact of the poles produced, first a smarting in the tumour, and afterwards contraction in the muscles of the calf, and a kind of shock in the sole of the foot. The patient was very restless, and constantly altered the tourniquet, so as to allow the pulsation to reappear in the tumour. The needles were therefore removed after some little difficulty, on account of their oxidation, and the tumour was covered with a bladder full of ice, the tourniquet being still applied with sufficient tightness to prevent pulsation in the aneurism. The patient, however, being very indocile, removed the tourniquet, which was allowed to remain to favour coagulation. The application of ice was continued during six hours, at the end of which time the aneurism pulsed as before, and it was feared that the operation had effected no benefit. On the morning of the 23d of January the pulsation continued with the same violence; it was remarked, however, that on compressing the femoral artery the tumour did not shrink as before, and that it diminished very little in size. In the middle of the day, twenty-four hours after the operation, there was no longer any pulsation. The patient even got out of bed, and took a few steps in his room, but he still felt a slight numbness in his leg. During the following days the tumour diminished by degrees, and became harder; the lateral depressions of the knee became apparent, the numbness disappeared, complete extension of the leg was practicable, progression was free, and there only remained a slight sensation of weight in the foot, which might be attributed to the dragging from its place of the popliteal nerve. On the 29th of January the patient was so elated by his unhoped-for cure that he would no longer remain in the hospital. On the 8th of March M. Ciniselli again saw the patient, at which time the tumour was reduced to the size of a hen's egg; it was quite hard, and the inconveniences experienced from the dragging on the popliteal nerve were rapidly disappearing.—*Gazetta Medica di Milano*, 1846.

M. Petrequin has been induced, by clinical researches, to make some modifications in the operative proceeding. Gangrene of the skin has been said to have been occasioned by the galvanic action. To prevent the possibility of this M. Petrequin has isolated the needles, by covering them with a layer of gumlac varnish, over a space corresponding to the tissues which they traverse. To succeed in coagulating the blood it is necessary to introduce the needles at opposite points, so that they may correspond with each other—to place them in an oblique or perpendicular direction to that of the blood, in order to oppose a barrier to its course—to cross them, in order to render their influence more active—and to multiply them in large aneurisms, so that a certain number of clots may be early produced, sufficient to act as a frame-work for the whole coagulum. It is also advantageous to change the direction of the currents many times, so that the galvanic fluid may act in every way, so as to produce a multitude of filaments that will extend as a mesh-work through the sanguineous mass. In difficult cases it is necessary to continue the galvanic action a long time, better to insure success, and even repeat the electric applications at successive sittings, especially when the pulsations reappear during or after the operation, when the tumour cannot be compressed, when the blood is only slightly coagulable, &c., &c.

These regulations are the result of clinical observation, and it will be unnecessary for us to recommend a consideration of them to surgeons who desire to try for themselves a method of cure, at once innocent and efficacious. In the same manner M. Petrequin has proposed galvano-puncture for various tumours, *navi materni*, and other erectile tumours, vascular fungus, &c. In enlarging the field for the application of this new method, its importance is exhibited, and practitioners will be better enabled to test its therapeutic value. —*Gazette Médicale*, 4 Juillet 1846.

WOUND OF THE CORNEA BY A SPLINTER OF WOOD, CONSECUTIVE IRITIS, AND PARTIAL PROTRUSION OF THE IRIS. By M. BAZZONI.

[The title of this observation only indicates one of its peculiarities which are worthy of attention. It will be necessary for the reader therefore to peruse the case to its termination.]

A peasant, aged 40 years, when occupied with cutting wood, caused a piece to fly into his right eye, which he was certain had been taken out entire. The practitioner who then saw him observed a small irregular wound in the cornea. Symptoms of iritis became developed, and protrusion was established. The treatment consisted of bleeding, cupping, calomel internally, mercurial frictions, belladonna, laudanum, &c. No amelioration followed, and he came on the 20th of April, a month after the accident, to consult M. Bazzoni, who observed the following phenomena:—Photophobia and continual weeping. In addition to external ophthalmia, there was seen in the centre of the cornea a small opaque and pointed tumour. There was loss of sight, and a feeling of pain, as if a needle was pushed into the eye. The iris was drawn a little towards the right side; the anterior chamber appeared very clear; a small portion of the iris was engaged in the tumour of the cornea. There was ptialism caused by the mercury. A large blister was ordered to be applied to the neck, ointment to the eyelashes, and the eyelids to be surrounded with extract of belladonna. On the 21st, the iris had returned to its natural position. On the 22d, there was diminution of the symptoms. The patient desired to be relieved from the continual and fatiguing sensation of pricking, and M. Bazzoni decided on removing the tumour of the cornea. On applying the instrument he at once recognised by the resistance offered, and a peculiar noise, that there existed a very hard foreign body in the centre of the tumour, and having extracted it with the forceps, it was seen to be a piece of pointed and rusty iron. The patient was immediately relieved from the feeling of

pricking, which had been incessant for a month, and declared himself cured. In two days the cure was complete.

The splinter of wood was probably followed by another of iron, detached at the same moment from the instrument used in cutting the wood, and had penetrated the eye, where its tenuity retained it, notwithstanding the immediate extraction of the piece of wood.—*Gazette Médicale*, 4 Juillet 1846.

FORENSIC MEDICINE.

ON THE MEDICAL EVIDENCE IN THE CASE OF ELLIS, TRIED FOR MANSLAUGHTER.

OUR readers will doubtless have learnt from the newspaper press, the particulars of this case. We revert to it now with a view of commenting upon the medical evidence, and pointing out how important it is in the inspection of dead bodies to examine *all* the cavities, and their contained organs with care.

The facts are simply these, as reported in the *Times*:—A gentleman, aged 45, having sundry aches and pains, and being prepossessed in favour of the water cure, entered an establishment kept by a Dr Ellis, for the purpose of being treated hydropathically. The doctor diagnosed “hepatitis of a sub-acute character, giving rise to suppuration, occasioning exudations of lymph, and a rapid extension of the disease to the adjoining viscera.” The patient died a few days after admission. The body was examined by two surgeons, Mr Charles Waterworth and Mr James Hicks, who found no disease of the liver, no structural lesion in the thorax or abdomen, only more or less congestion of the lungs and heart. They considered the immediate cause of death to have been extreme congestion of the internal organs, and believed that the application of cold externally had induced or favoured this. In consequence of such evidence, and the improper cross-examination by the defendant’s counsel, the jury gave the coroner a verdict of manslaughter.

Affairs assumed a very different appearance, however, at the Central Criminal Court, where the defence was ably conducted by Mr Cockburn. He induced Mr Waterworth to state that he would not actually pledge himself as to the cause of death; that if the brain had been congested, it might have accounted for the congested state of the heart and lungs, but he did not open the head to see the state of the brain. Mr Hicks also acknowledged, under cross-examination, that “he did not examine the head of the deceased, because he considered he had found quite sufficient cause of death in the congested state of the heart and lungs.” At the same time he confessed that “some disease of the brain might cause congestion of the lungs.” Mr Cockburn, therefore, in his address to the jury, forcibly pointed out “that it was admitted, although some diseases of the brain might have occasioned the congested state of the lungs, yet that organ was not examined; and, for all the jury knew to the contrary, it might, if the examination had taken place, have entirely accounted for the appearances which presented themselves on the body of the deceased.”

The jury, as a matter of course, found a verdict of *not guilty*. How could twelve sensible men do otherwise, when they had to judge of medical testimony which amounted to this? that death was caused by congestion of the lungs; this congestion might have been occasioned by disease of the brain; but that it was not necessary to look at the brain in order to determine the point. Besides, how was it possible to state that the cause of death was even congestion of the lungs when the head was not examined? When will medical men learn that they are not warranted in stopping an examination as soon as they find what is (perhaps presumptuously) believed by them sufficient to cause death? When will they discover that there can never be any certainty either as to the cause of the symptoms, or of death, unless *all* the organs

be examined? We trust that the case of Ellis will be of some service to the profession. It will at least have taught Messrs Waterworth and Hicks a lesson, which others may reap the advantage of.

MAGNESIA IN THE TREATMENT OF POISONING BY ARSENIC.

At the sitting of the French Academy of Sciences, 18th May, M. Bussy presented a note on the use of magnesia in poisoning by arsenic. The results of his paper are as follows:—

1. That purified animal charcoal, recently proposed against poisoning by arsenious acid, cannot be employed successfully for that purpose.

2. That magnesia, in a state of purity, but not strongly calcined, readily absorbs arsenious acid in solution, and forms with it a compound insoluble even in boiling water.

3. That in the gelatinous state it still more readily absorbs the poison.

4. That animals which have been forced to swallow arsenic uniformly escape when made to take a sufficient quantity of magnesia.

5. That this antidote has, over every other known or in use, the advantage of being found at hand in all the shops; that it readily and completely neutralises the poison; that it can be given in large quantity without inconvenience; and that its general effects on the system coincide with the indications of treatment to be fulfilled under the operation of the poison.

6. That magnesia decomposes emetic tartar, the salts of copper, corrosive sublimate, and that there is reason to believe it might be successfully employed to counteract and destroy the effects of these poisonous substances, and of metallic salts in general.

7. That the salts of the organic alkalies, morphia, strychnia, &c., being also decomposed by magnesia, the use of that substance, in the case of poisoning with organic products, owing their activity to the presence of vegetable alkalies, might be the means of impeding and retarding the absorption of the poison. This conjecture the author reserves for verification by farther trials.¹
—*Gazette Médicale de Paris*, 23d Mai 1846.

SUICIDE—IMPORTANT DECISION RESPECTING POLICIES OF LIFE ASSURANCE.

Exchequer Chambers, June 16.

This case, *Clift v. Schwabe*, which came before the Court on a writ of error, was to try the effect of a clause usually inserted in life assurance policies, to the effect that the policy became void should the insurer commit suicide. The insurer had effected five policies in the Argus Office for L.999 each, and last year, while suffering from insanity, committed suicide. The defendant brought an action against the present plaintiff, which was tried before Mr Justice Cresswell, and a verdict was afterwards given in her favour. The jury, on that trial, were directed to find whether, at the time the deceased committed the act, he was able to distinguish between right and wrong, so as to have a moral responsibility. The jury found that he was unable to distinguish. A bill of exception was tendered to the summing up of the learned judge. Their Lordships this morning delivered judgment in the cause.

The Lord Chief Baron and Mr Justice Wightman were of opinion that Mr Justice Cresswell was right in the view he had taken of the case at the trial. It was proved that the insurer took poison while in an unsound state of mind. The words in the policy were, "should commit suicide;" and the question related to the meaning of those words. Did they mean the act of a party responsible and capable of distinguishing between right and wrong, or

¹ See report of Professor Christison's observations on this subject, read to the Medico-Chirurgical Society of Edinburgh, 1st July 1846, under the head of Medical News in this number.

did they mean the act of one who, producing his own death, while his judgment was perverted by disease, was insane upon every point but that one which caused destruction? What was meant by the word "suicide?" It was a very modern one; it was first met with in "Hale's Pleas of the Crown." It was in Blackstone, and in nearly every dictionary, and they rendered it "self-murder"—"the slaying of oneself." Moore, in his book printed in 1790, said there were many exceptions to the general rule of guilt; for although every person who terminated his existence by his own hand committed suicide, yet he did not always commit self-murder. If a man killed himself involuntarily, it came under the legal definition of accidental death. The word had never been used by any law-writer but in the sense of criminally taking away one's own life. Hale defined suicide to be committed when a man of age and discretion, and *compos mentis*, voluntarily killed himself. The question, however, was really what was the meaning of the parties to the policy. The words were, "commit suicide;" but would that infer the committal of a crime?—"or die by duelling, or by the hands of justice." The latter infers a criminal act, not a result of insanity. The object of the policy generally was to make a provision for the family, and the insurer was protected against accidents. The plaintiffs in error said that if a man retained just enough intelligence to produce death by competent means, but was deprived of all moral sense, the policy was void. He could not think that the insurer so meant. If his intellect was gone wholly or partially, there could be no difference; for in law a man was either responsible or irresponsible; the gradations were scarcely perceivable. An insane man could no more commit suicide than he could murder, and whether an insane man could intend anything was a matter requiring the gravest consideration. Insanity produces delusion, and should a man then mistake an instrument of death for one of music, and instead of playing kill himself; should a man fancy himself an apostle, and so think it his duty to die the death of a martyr,—where was the destruction? Some clear and simple rule on this subject ought to be laid down. In his opinion, if death came, whether by affecting the senses or affecting the reason, the insurance office was liable under this policy. If the act was not the act of a sane and reasonable creature, but the event of any delusion, it was not the act of the man. He was, however, sorry to say, that the majority of the court was at variance with that of his brother Wightman and his own. Barons Parke, Anderson, and Rolfe, and Mr Justice Patteson, were in favour of the plaintiffs in error. The distinction between felon suicide and not felon suicide, seemed to show that suicide did not contemplate a criminal act. The meaning of the words were, if the man should kill himself; no other question should have been put. If a man voluntarily kill himself, it was of no consequence whether he was sane or not. The judgment of the court below for the present defendant in error, must, therefore, be reversed.—*Daily News*.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXV.

NINTH MEETING—*Wednesday, 3d June*.—DR GAIRDNER, P., in the Chair.

ON THE DURATION OF LABOUR—A STATISTICAL INQUIRY. By DR J. Y. SIMPSON.—This important communication will appear entire in a forthcoming number.

ACCOUNT OF A TYPHOID FEVER, APPARENTLY ORIGINATING IN LOCAL MIASMA. By DR CHRISTISON.—This communication appeared in our last number.

MR R. H. GUNNING was admitted an ordinary member, and M. HIPPOLYTE LARREY of the Val-de-Grace Hospital, Paris, a corresponding member of the Society.

TENTH MEETING—*Wednesday, 1st July.*—DR GAIRDNER P., in the Chair.

ON THE SEDATIVE EFFECTS OF ASTRINGENT SUBSTANCES. By DR SELLER.—The author set out with remarking, that the property of restraining excessive nervous susceptibility, of allaying morbid sensations and irregular vital acts, possessed in a high degree by narcotics, belonged to some substances besides, as to preparations of lead, fixed alkalies and alkaline carbonates, to some other remedies, usually placed among refrigerants, besides salts of lead, and, as generally acknowledged, to some substances in the order of astringents. It appeared to him, however, that this property is so universal among astringents, that it may be suspected to belong to them in virtue of their astringency. He then made some preliminary observations on the meaning of the term sedative, remarking, that this term, in its most general sense, might require extension rather than limitation; for while it was commonly employed merely in reference to the mitigation of abnormal states of the nervous system, of which the patient is conscious, it is highly probable that there are remedies capable of restraining the transmission, by nerves, of impressions—of which the patient is not immediately conscious—but which, nevertheless, may have the effect of producing the most serious morbid consequences. And thence he inferred it to be not unlikely that many of our so-called specifics and alteratives act in this manner—silently controlling agencies which, left to operate with their natural force, neutralise the sanative efforts made by the constitution to throw off the disease. After illustrating this idea, he proceeded to review the ordinary sedative property possessed by such chemical astringents as lime water, sulphuric acid, alum, and sulphate of zinc, and by such vegetable astringents as catechu kino, logwood, galls, ratanhia, and uva ursi, with the purpose of bringing the facts recorded in the history of these substances to bear on his general conclusion, that astringent substances are sedative in virtue of their astringency.

ON THE CONDITION OF THE URINE IN A CASE OF URTICARIA. By DR DOUGLAS MACLAGAN.—The gentleman whose case was submitted to the Society was a patient of Dr Scott, and had long been the subject of severe attacks of urticaria, occurring almost daily, and after every meal, attacking particularly the face and upper part of the body, and by the disfigurement which they occasioned, as well as by the cutaneous irritation, proving a very distressing and annoying complaint. From inquiries made by his medical attendant, his attention was called to the state of his urine, respecting which he had not previously made any particular observations. When his attention was directed to this subject, he found that, though not in any way unnatural in quantity, it had a very pale colour, and considering it to be defective in some respect, he sent it to Dr Scott for examination. Dr Scott found it to be of remarkably low density, averaging only about 1010. Naturally suspecting that this might be connected with diseased kidneys, Dr S. tested it for albumen, but not a trace of this substance could be detected in it. Under these circumstances, Dr Scott submitted it to Dr M. for more rigid examination, on the 26th December last.

The urine sent was the morning urine, which should always be used for examination where the whole urine of 24 hours cannot be obtained. The quantity sent was about 10 oz. It was of a very pale straw colour, quite transparent, and let fall no deposit on standing. Its reaction with litmus was feebly but

distinctly acid. Its density 1009·039. It was analysed by the process employed by M. Becquerel, in his *Semeiotique des Urines*, by which the amount of water, urea, uric acid, inorganic salts, are determined. The results obtained from the urine in the present instance were the following :—

Urea,	.	.	.	.	6·91
Uric acid,	.	.	.	.	0·05
Inorganic salts,	.	.	.	.	12·03
Other organic matters and water,	.	.	.	.	981·01

1000·00

Albumen was carefully tested for by all the re-agents applicable to this end, and Dr Scott's observation, that no trace of this substance was detectable, was fully confirmed.

The peculiarities of this urine will best be appreciated by contrasting it with the proportion given by Becquerel as the mean of the urine of healthy males. According to him, that is,

Urea,	.	.	.	.	13·838
Uric acid,	.	.	.	.	0·391
Inorganic salts,	.	.	.	.	7·695
Other organic matters and water,	.	.	.	.	978·076

1000·000

It appeared, then, from this analysis, that the chief peculiarity in the present case was a deficiency in the ordinary characteristic ingredients of the urine, the urea, and uric acid. This could not arise from mere excess of water; first, because the urine was not excessive in quantity; second, because the inorganic salts were above the normal standard, whereas, had the water merely been in excess, they, too, ought to have indicated a diluted condition of the urine. Dr M. ventured, therefore, to propose, as the pathological view of the case, that the defect here was merely a deficiency of the urea and uric acid; in short, a want of what modern chemists call the products of transformation of the tissues, and that the retention in this way in the system, of matters which ought to be eliminated from it might be the cause of this cutaneous irritation, especially occurring, as it did, after meals.

The question now was, how was this to be remedied. It occurred to Dr MacLagan that as it was known that colchicum had the property of increasing, in a remarkable degree, the amount of urea in the urine* of persons using it, this drug might have some effect in bringing the urine of this patient to a more healthy condition.

In conformity with this suggestion, Dr Scott placed his patient on the use of the tincture of the seeds of colchicum, and, on the 13th January, when the colchicum had been in use for about a fortnight, another sample of the urine was procured, and analysed, as before. The following were the results :—

Its density was 1029·9.

Urea,	.	.	.	.	20·36
Uric acid,	.	.	.	.	0·50
Inorganic salts,	.	.	.	.	12·72
Other organic matters and water,	.	.	.	.	966·42

1000·00

Here, then, it will be seen that the expected physiological action of the colchicum was manifested in a marked degree. The urea was tripled in its amount, and raised above the normal standard. The increase of uric acid was in a tenfold ratio, whilst the water and the other organic constituents suffered,

* Dr Christison's Observations on this point. Published by Dr Robert Lewins, in his paper on Colchicum. Edin. Med. and Surg. Journal, No. 148.

of course, a corresponding diminution, the inorganic salts remaining nearly as before.

The result of the case was more decidedly favourable than was anticipated. The tendency to the urticaria diminished, and at last entirely went off under the use of the colchicum, and the patient has kept free of his complaint since that time.

The above case was not adduced with the view to establish a pathological theory of urticaria. No single case will serve as a basis on which to found this. It was, however, laid before the Society, in order that attention may be directed towards the state of the urine in cases of a similar nature, and because it appears to be of some interest to observe a therapeutical result obtained from a consideration of the physiological action of a drug.

Allusion was made to the fact, that Dr Elliotson and others had obtained good results from the use of colchicum in these diseases.

OBSERVATIONS ON MAGNESIA AS AN ANTIDOTE TO ARSENIC. BY DR CHRISTISON.

—Dr Christison's attention was lately turned to this subject by a case of poisoning with arsenic having come under his notice, in which magnesia seemed to prove very serviceable. Immediately afterwards he observed it announced in a French scientific newspaper, *L'Institut*, Mai 20, that a paper had been read before the French Institute two days before by M. Bussy, to prove, "That magnesia, not strongly calcined, removes arsenic entirely from a state of solution in water: That this is effected still more completely by magnesia in the gelatinous state: and that animals which have taken arsenic are invariably saved if made to swallow magnesia." While waiting for the details of Mons. Bussy's inquiries, Dr Christison made a few experiments to ascertain the amount of the action of magnesia; and he found that the dense magnesia of the shops exerts very little action in removing arsenic from solution in water; that a very light magnesia, now largely manufactured at Belfast, and quite free of carbonic acid, will remove about a twenty-fifth of its weight of arsenic from solution in water, when agitated with the solution for a few minutes, so that even ammoniacal nitrate of silver does not any longer indicate the presence of arsenic; that the same magnesia will remove about a twelfth of its weight of arsenic if agitated occasionally for a period of eight or twelve hours; that this proportion is removed entirely in less than three minutes if the mixture of magnesia and water be previously near the temperature of 212° ; and that the same proportion is removed with as much speed at ordinary temperatures, if the magnesia be used in the form of gelatinous pulp, as thrown down in a cold solution of sulphate of magnesia by solution of caustic potash, and washed with cold water.

It is well known that magnesia was proposed many years ago by Mr Hume of London, as an antidote for arsenic, and that several cases have been published in which it appeared to have been of service; but that its general utility has been doubted or denied on account of the apparent want of chemical action between oxide of arsenic and magnesia. Mons. Bussy's inquiries will probably clear up these difficulties. Meanwhile, it appears probable, from the experiments described above, that the general belief in the want of action between magnesia and oxide of arsenic has arisen from the circumstance that, for a long time, no other magnesia has been in current use in medical practice in Britain except the dense variety, which appears to exert very little action on arsenic in solution on account of its great density.

Dr Christison promised more accurate experiments and a statement of the successful case hereafter. Meanwhile it appears advisable that, when magnesia is used as an antidote, and cannot be promptly obtained in the gelatinous state, the light calcined magnesia should alone be employed, and in the proportion of between thirty and fifty parts to one of arsenic.

ON THE PRESENCE OF CONFERVÆ IN SOME EXUDATIVE MASSES PASSED BY THE BOWELS. By Dr J. HUGHES BENNETT.—Dr Bennett exhibited fragments of

exudative masses in laminæ, which had been passed *per anum* by a woman who applied at the ROYAL DISPENSARY during the past week. She stated that, on the previous day she felt soreness and pain in the abdomen, and, having been for some days constipated, she had been induced to take castor oil. After the operation of the medicine, she observed in the vessel several fragments of what appeared to her to resemble calves' leather which had been steeped in water. Being alarmed, she brought them with her to the Dispensary. These fragments varied in size; the largest was of a square form, about 3 inches broad, $3\frac{1}{2}$ long, and $\frac{1}{8}$ th of an inch in thickness. It was of a straw-yellow colour, perfectly smooth on both sides, soft and easily torn, presenting a fibrous structure. A minute portion, viewed with a power of 220 diameters linear, was seen to be made up of a mesh-work of non-ramified filaments, varying in diameter from $\frac{1}{500}$ to $\frac{1}{300}$ of a millimetre, marked here and there irregularly by transverse striæ. On increasing the magnifying power to 500 diameters linear, these transverse striæ were seen to be the septa of jointed tubes, placed at irregular distances from each other. Numerous oval and rounded granules (probably sporules) were scattered amongst the tubes, their diameters varying from the $\frac{1}{500}$ to $\frac{1}{300}$ of a millimetre in diameter. (See Figs. 30 and 31, p. 99.)

Dr Bennet stated that cryptogamic vegetations had been observed in mucous membranes by Langenbeck, Klenke, Vogel, and other histologists. This was the first time he had himself seen such a structure from the mucous membrane of human intestines, and, as will be seen by referring to the figures, they differ materially from those represented by Vogel (*Scones Histologiæ Pathologicæ*, Tab. xxi.)

Dr Spittal inquired whether any member of the society had met with a case of cholera with cramp. It had been reported that, in one instance, the disease had proved fatal.

Dr Seller stated, that he had attended one very severe case of this kind, in which there was great vomiting and purging, with severe cramp; but the individual was slowly recovering. He had heard of a few other cases of English cholera occurring during the sultry weather, but none which had proved fatal.

The *President* announced that the session had now come to an end, but he hoped to meet the members once more on the first Wednesday of November. In an able valedictory address, he reviewed the transactions of the past session, and concluded by hoping that the vacation would be spent in a manner that would render the future meetings of the society as interesting and instructive as those which had just terminated.

MEETING OF THE PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.—We call the attention of our friends in the North to an advertisement of this association. It seems that the anniversary meeting is to be held this year at Norwich, under the presidency of John Green Crosse, Esq., a gentleman whose name is distinguished in English surgery. We have often been surprised that none of our Scottish celebrities have ever visited the fair provinces of the South, and mingled the *utile* with the *dulce*, by joining the association. We shall be glad to hear of their doing so on the present occasion; and are empowered, in the name of the president, to offer them a cordial welcome and reception.

GIESSEN DEGREES.—In answer to the numerous attacks directed against the University of Giessen, its rector, Dr J. B. Wilbrandt, has caused to be inserted in the *Grossh. Hess. Zeitung*, a resolution of the Faculty, according to which the degree of M.D. will no longer be accorded to foreigners, unless they undergo the required examination in person.—*Gazette Médicale*, Mai 9, 1846.

MODE OF INOCULATION IN CHINA.—Instead of introducing the virus directly into the system by a slight incision, they accomplish their object in a circuitous and rather complicated way. The crust of a maturated pock is thoroughly dried, powdered, and rubbed into the mucous membrane of the nostril, or a piece of cotton powdered with it, is stuffed up the nose. This is the most common method for the common people; but there is one of greater pretension, though probably less effectual, for the rich. A small metallic cup, shaped like the bowl of a tobacco-pipe, is introduced into the nostril of the child, while the inoculator, applying his mouth to the stem, blows the variolous contents forcibly against the lining membrane.—*Wilson's Medical Notes on China.*

BOOKS RECEIVED.

In future, all Works received before the 20th of the Month will be regularly acknowledged.

1. A series of Essays on Inflammation, and its Varieties. Essay I. By Henry Clutterbuck, M.D. 8vo. London, 1846.

2. The Economy of the Animal Kingdom, considered Anatomically, Physically, and Philosophically. By Emanuel Swedenborg. Translated from the Latin by the Rev. Augustus Clipold, M.A. 2 vols. 8vo. London, 1845-6.

3. A Practical Treatise on the Diseases of Children. By James Milman Coley, M.D. 8vo. London, 1846.

4. Dr Hooper's Physician's Vademecum, or a Manual of the Principles and Practice of Physic. New edition. With an outline of General Pathology and Therapeutics. By Wm. A. Guy, M.B., &c. 12mo. London, 1846.

5. A Practical Manual, containing a Description of the General, Chemical, and Microscopical Characters of the Blood, &c. By John W. Griffith, M.D. 12mo. London, 1846.

6. Observations on the Edinburgh Pharmacopœia, and on the Dispensatory of Dr Christison and Dr A. T. Thomson, &c. By Richard Phillips, F.R.S., &c. 8vo. London, 1846.

7. Chelius's Surgery. By South. Part 12.

8. Practical Observations on Mineral Waters and Baths, with notices of some Continental climates, and a reprint (the third) of the Cold Water Cure. By Edwin Lee, Esq., &c. Small 8vo. London, 1846.

9. The Retrospect of Medicine. Edited by W. Braithwaite. Small 8vo. Vol. 13. London, 1846.

10. The Half-yearly Abstract of the Medical Sciences. Edited by W. H. Ranking, M.D., &c. Vol. 3. 8vo. 1846.

11. The Surgical, Mechanical, and Medical Treatment of the Teeth. By James Robinson, &c. 8vo. London, 1846.

12. The Brain and its Physiology, a Critical Disquisition on the Methods of determining the Relations subsisting between the Structure and Functions of the Encephalon. By Daniel Noble, Member of the Royal College of Surgeons of England. 12mo. London, 1846.

13. Eothen. Fourth edition. 8vo. London, 1845.

14. Letters on the more Evident Changes which the Body undergoes, and the Management of Health from Infancy to Adult Age. By C. Black, M.D. 12mo. London, 1846.

15. Hints for Pedestrians. By Medicus. With illustrations. Second edition. London.

16. Biographical Sketch of the late Robert Graham, M.D., F.R.S.E., Professor of Medicine and Botany in the University of Edinburgh, &c.; being the Annual Address, delivered before the Harveian Society of Edinburgh, on 11th April 1846, by Charles Ransford, M.D., President for the year, &c. 8vo. Edinburgh.

TO CORRESPONDENTS.

Dr Williamson's case has been received.

No paper can be possibly inserted in the subsequent number unless it be received before the commencement of the second week of the month.

We have been under the necessity of refusing various journals and parcels (principally from the United States), on account of the enormous postage charged for them. All letters, books, parcels, &c. must be forwarded to us entirely free of expense.

THE
MONTHLY JOURNAL
OF
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No. LXIX.

SEPTEMBER 1846.

No. 3. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Nature of the Membrane occasionally expelled in Dysmenorrhœa.* By J. Y. SIMPSON, M.D., Professor of Midwifery in the University of Edinburgh, &c.

It is well known that in some cases of dysmenorrhœa an organised membrane is expelled, with much pain, from the uterus during the course of the catamenial discharge, and that this happens either occasionally only, or, what is far more common, during a long succession of menstrual periods.

All authors who have expressed an opinion regarding the nature of this dysmenorrhœal membrane have, as far as I am aware, regarded it as a morbid structure formed by the exudation of coagulable lymph or fibrine upon the free surface of the mucous membrane of the uterus.

“It is composed (says Dr Churchill) of plastic lymph, such as we see secreted by the mucous membrane of the trachea in croup, thrown off by the lining membrane of the uterus, and taking generally the form of the cavity of that organ, although it may be discharged in shreds.”¹

“We shall probably be correct (Dr Montgomery observes) in referring such productions [dysmenorrhœal membranes] to any cause capable of exciting a certain degree of irritation, or perhaps of inflammation, by which fibrine is poured out on the internal surface of the cavity of the uterus, and assumes a membranous texture, as we find happen in other hollow organs lined with a mucous membrane, as, for instance, in the intestines in cases of diarrhœa tubularis, and in the trachea and air tubes.”²

¹ Diseases of Females, p. 102. Edition of 1844.

² Signs of Pregnancy, p. 147.

"The membranous shreds passed in some of these cases [of dysmenorrhœa] evidently (remarks Dr Copland) consist of plastic lymph thrown out in the cavity of the womb. . . . That a degree of inflammatory irritation exists in the internal surface of the uterus, even in the neuralgic form of the disease, is proved by the formation and expulsion of a false membrane in many cases of that form. That this membrane is induced by the similar state of inflammatory action to that which sometimes occurs in other mucous surfaces, and gives rise to a similar exudation, is most probable, notwithstanding the absence of other inflammatory phenomena, and the neuralgic character of the pain."¹

In a number of cases, I have had an opportunity of examining from time to time the form and structure of these dysmenorrheal membranes. Two or three years ago, my observations upon them led me to believe that they were not new or false membranes formed of coagulable lymph, and secreted by the mucous surface of the uterus, but that they in reality consisted of the mucous membrane of the uterus itself, hypertrophied and separated. All my later observations have gone to confirm me in the same opinion, viz. that the productions in question are not the results, as is generally supposed, of fibrinous or plastic *exudations upon* the free surface of the mucous membrane of the uterus, but that they consist of actual *exfoliations of* that membrane itself.

The proof of this opinion rests upon different grounds:—

First, The dysmenorrheal membrane presents anatomical peculiarities that are never seen in any simple fibrinous or inflammatory exudation; and these anatomical peculiarities, on the other hand, specially pertain to, and are characteristic of, the structure of some mucous tissues, such as that of the uterus. One special illustration may suffice. Professor Reid, Krauss, and others, have shown, that the surface of the mucous membrane of the uterus is marked by numerous orifices of small tubular glands, crypts, or follicles, opening upon it (the uterine glands of some modern authors). This structure I have distinctly traced in different specimens of dysmenorrheal membrane from different individuals.

Secondly, The general configuration and character of the surfaces of the dysmenorrheal membrane are such as would result from the origin which I have attributed to it, namely, the exfoliation or detachment of the mucous membrane of the uterus. In those instances in which the membrane is thrown off in one piece, and without disintegration, it presents exactly the flattened triangular

¹ Dictionary of Practical Medicine, vol. ii. pp. 844, 845. See also Dr Fergusson in the Library of Medicine, vol. iv. p. 311 ("a not uncommon effect of dysmenorrhœa is the formation of *coagulable lymph* modelled to the shape of the inner surface of the uterus). Dr Rigby's Essay on Dysmenorrhœa, p. 39 ("*fibrinous exudations* every now and then attend these cases of dysmenorrhœa)."—*Dr Ashwell's Treatise on Female Diseases*, p. 105 and 107, &c.

appearance of the uterine cavity. Its sides may be so compressed that the expelled mass at first appears solid; but a little careful dissection or maceration will readily show that it consists of two layers, and that there are the remains of a cavity between them. The interior of the cavity is smooth, and marked by the orifices of the uterine mucous crypts that I have above alluded to. Occasionally we can easily trace three large openings at its three angles, corresponding to the openings of the two Fallopian tubes and cervix uteri. But the external surface of the mass is rough and shaggy, marking the effects of laceration from the tissue of the uterus. Sometimes we see a piece discharged quite smooth on one surface, and rough on the other. When this is the case, we may be perfectly certain that it is a portion only of the membrane which has been expelled, or, at least, preserved for inspection. For, if the portion of mucous membrane lining the anterior wall of the uterus alone, or lining its posterior wall alone, be discharged and examined (and not that of the whole cavity), it will necessarily display the apparent anomaly alluded to. If the membrane is thrown off in broken or disintegrated fragments, as sometimes happens, it will be more difficult to trace the structural characteristics that I have mentioned. Another form of difficulty is occasionally produced by blood being infiltrated into or upon the dysmenorrheal membrane. In some instances the membrane is found encased in one or more layers of coagulated blood; and if that blood has already become decolorized, and assumed a fibrinous appearance, mistakes might easily occur, provided the inquirer were not aware of this source of fallacy.

One of the earliest descriptions of the dysmenorrheal membrane upon record is given by Morgagni. He gives an exact account of the appearances which it presented in the case of a "noble matron," long afflicted at the menstrual period with "pains like those of child-birth." Morgagni's description of the dysmenorrheal membrane expelled on these occasions is so exact and excellent, that I shall perhaps be excused quoting it. "In almost the middle (as he states) of the membranous flux, a membranous body, as it appeared, was discharged from the uterus; and that in such a form, and of such a magnitude, as perfectly corresponded to the triangular form of the uterus; being moderately convex externally; on which surface it was unequal and not without many filaments that seemed to have been broken off from the parts to which they had adhered, but internally hollow; on which surface it was smooth and moist, as if from an aqueous humour, which it had before contained, but had discharged, at its own exit, by an ample opening, which was at one of its angles, that had been readily opened by rupture."¹

Thirdly, The dysmenorrheal membrane exactly resembles the

¹ Morgagni, "The Seats and Causes of Diseases," &c. Vol. ii. p. 706.

decidual membrane (the decidua vera); and all our highest authorities in anatomy are, I believe, now willing to grant that, as pointed out by the researches of Sharpey, Weber, Goodsir, and others, the decidua vera is not a new membrane, formed in the uterus after conception, but merely the normal mucous membrane of the uterus hypertrophied, with its mucous crypts or follicles increased in size, and the cells of its interstitial tissue greatly developed and multiplied. In the dysmenorrheal membrane the mucous follicles or crypts are perhaps not enlarged and developed to the same proportionate degree as they are in the decidual membrane. In other respects the two membranes are identical. They have the same triangular form. There is the same appearance in both of openings at their three angles, and in both these openings are occasionally more or less perfectly sealed up when the tissue of the membrane, in their immediate neighbourhood, is developed in an unusual degree. The external surface of each membrane has the same shaggy, ragged form. In each we have the same cribriform appearance upon their smooth internal surface, marking the orifices of the mucous follicles. When examined under the microscope, the interstitial or inter-follicular tissue of both membranes, shows a similar structure, namely, one wholly composed of an agglomeration or superposition of simple nucleated cells. And altogether, if, on the one hand, it be allowed that the structure of the decidua proves it to be the mucous membrane of the uterus in a state of high development and hypertrophy, then, on the other hand, the structure of the dysmenorrheal membrane is so similar to that of the decidua, as to prove a perfect identity with the decidua in its characters, and, consequently, also in its origin.

In some respects the evidence which we have in favour of the decidual membrane being merely a hypertrophied state of the mucous membrane of the uterus, is still wanting, in so far as regards the dysmenorrheal membrane. For, *first*, in cases of patients dying at different periods of early pregnancy, a regular progression of observations has now been made, showing the gradual transformation of the true mucous into the true decidual membrane; and, *secondly*, in patients dying after delivery, and, consequently, after the separation of the decidual or lining membrane of the uterus, the actual absence of the mucous surface of the uterus has been often ascertained on dissection. I lately saw a case where the patient died six weeks after delivery, and still, at that late date after confinement, the mucous lining of the uterus was not yet regenerated. No corresponding series of observations has hitherto been made upon the actual formation of the dysmenorrheal membrane before menstruation, or upon its actual absence after that period. But a more careful investigation of the state of the uterus after death, in patients who have happened to be suffering under membranous dysmenorrhœa during life, will, I have no doubt, afford the

requisite data. It may not be uninteresting to add, that the absence of the mucous lining of the uterus in persons who have died after delivery, or who have been previously subject to membranous dysmenorrhœa, may have given rise to the strong opinions expressed in former times by several anatomists, and particularly by Morgagni, Chaussier, and Gordon, in regard to the human uterus not being normally provided with a mucous membrane. Not meeting with that membrane under some circumstances and in some cases, they were induced to doubt its presence under any circumstances or in any cases.

Modern physiology has made us sufficiently acquainted with the curious fact, that a portion of the epithelial layer of the mucous surface of various organs, exfoliates constantly and normally during the performance of the special functions of these organs. For instance, this holds true with regard to the epithelium of the stomach during digestion, and that of the uterus during menstruation. But there are few circumstances, either in healthy or morbid anatomy, so strange as that which I have attempted to prove in the preceding remarks, namely, that the proper mucous tissue of the uterus itself may, within the compass of a menstrual period, form, enlarge, separate, and again be reproduced; and further, that all this may occur and continue regularly for a succession of months, or, as sometimes happens, for a succession of years.

I have no intention, however, at present of dwelling either upon the various pathological or practical views to which the opinion that I have above propounded regarding the origin and nature of the dysmenorrhœal membrane, very evidently points. It is enough perhaps to remark, that the observations which I have made go to demonstrate that the dysmenorrhœal membrane is not formed, as is generally believed, by a simple inflammatory effusion of plastic or coagulable lymph, and hence is not to be successfully prevented and combated by simple anti-inflammatory treatment. The action giving rise to it may in some cases be combined or complicated with inflammation. I have seen, for example, the membranous dysmenorrhœa in several instances co-existing with inflammatory induration and ulceration of the cervix uteri. But essentially, the normal action of the uterus or ovaries giving rise to the formation of the dysmenorrhœal membrane is not a state identical with inflammation, but a state identical with the condition of these organs after impregnation and during the earlier weeks of pregnancy. It is so far a state and product natural to one special condition of the uterus, but here occurring at an unnatural time, under unnatural circumstances, and with unnatural frequency.

ARTICLE II.—*Tables of the Weights of some of the Organs of the Human Body.* By T. B. PEACOCK, M.D.—*Continued from p. 110.*

		Wgt. of whole Body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum, with Pons Varoli and Medulla Oblong.	Fluid in Ventricles.	Fluid beneath Arachnoid.	Weight of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	Disease causing Death.—Remarks.
Age.	Occupation.	lbs.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
Yrs. mo.													
22 0	Flesher	...	49 8	...	...	...	...	...	...	...	...	...	Clots of blood in the hemispheres, and lymph on the membranes, especially at the base. Duration of disease 10 days.
33 0	Cabinetmaker	108 52	8 8	46 8	6 0	3jss	...	11 0	...	...	...	...	Softening of the grey matter on anterior lobe of cerebrum; pneumonia.
36 0	Shoemaker	...	46 8	...	...	3jss	consid.	17 8	54 0	9 8	6 0	5 0	Softening of corpus striatum and cerebellum. Mitral valvular disease; anasarca.
41 0	Blacksmith	111 45	8 8	39 0	6 8	3ij	consid.	11 0	84 8	42 8	6 12	6 0	Clot in substance of left hemisphere; fibrinous masses in spleen; cirrhosis hepatis; mottled kidneys; cerebral disease of 1 month's duration.
51 0	...	74 44	12	...	...	...	...	...	...	...	...	...	Fracture of the base of the skull and extravasation; death 14 days after the injury.
60 0	Native of Bombay, of mixed descent	76 35	8	...	...	3ij	slight	D.	...	...	D.	D.	Softening of hemispheres; aneurism of asc. aorta; diseased heart and kidneys.
60 0	...	...	41 8	36 8	5 0	...	...	...	...	...	...	...	Meningeal apoplexy; softening of hemispheres; pneumonia.
11 ^m 19 ^d	...	...	28 5½	24 11	3 10½	...	...	...	...	...	...	...	Phthisis; large tubercular masses imbedded in substance of brain.
19 yrs.	...	...	49 0	...	...	...	...	...	...	...	...	...	Lymph on surface of hemispheres; turbid serum in ventricles.
50 0	...	79 37	0 31	0 5 8	3jv	...	...	...	...	...	...	...	Flattening of convolutions, and effusion in ventricles. Patient long bed-ridden and insensible.
60 0	...	85 37	8	...	...	...	...	...	...	...	...	...	Fract. of left temporal bone, and effusion; death two days after the injury.
66 0	...	79 35	0	...	...	3ss	consid.	18 0	...	...	D.	D.	Injury of head and effusion; fracture of leg and thigh; cysts in kidneys; disd. aorta.

FEMALES.

TABLE III.—Weights of Diseased Brains.
The letter D is inserted when the organs were diseased and were not weighed.

MALES.

TABLES IV. and V. exhibiting the ratio of the Encephalon and of the Cerebellum, with the Pons Varolii and Medulla Oblongata, to the weight of the whole body; together with the ratio of the Cerebellum, and Pons Varolii, and Medulla Oblongata, to the Encephalon in the observations previously given.

TABLE IV.—MALES.

Ages.	Ratio of Encephalon to Body.	Of Cerebellum, &c. to Body.	Of Cerebellum, &c. to Encephalon.	
Yrs. mo.				
1 11	1 to 14·3	...	...	...
3 6	...	...	1 to 9·3	...
6 0	...	...	1 to 8·36	...
11 0	1 to 12·2	...	...	...
17 0	...	...	1 to 7·7	...
19 0	...	...	1 to 6·44	...
21 0	...	...	1 to 7·8	...
22 0	1 to 39·8	...	...	...
23 0	1 to 45·1	1 to 276·8	1 to 6·0	Negro.
23 0	1 to 35·3	1 to 303·1	1 to 8·5	...
25 0	1 to 39·2	...	...	...
26 0	1 to 45·2	...	...	...
27 0	1 to 36·5	1 to 274·2	1 to 7·5	...
28 0	1 to 32·	...	...	...
28 0	1 to 29·8	...	...	...
28 0	1 to 35·2	...	...	...
29 0	...	...	1 to 7·3	...
30 0	...	...	1 to 7·4	...
30 0	1 to 52·3	...	...	...
32 0	1 to 34·4	1 to 244·5	1 to 7·1	...
32 0	1 to 33·8	1 to 296·	1 to 8·7	...
32 0	1 to 37·1	1 to 322·	1 to 8·2	...
32 0	...	...	1 to 7·1	...
34 0	1 to 79·8	1 to 405·	1 to 8·4	...
36 0	...	...	1 to 8·	...
37 0	1 to 39·8	...	...	...
38 0	1 to 49·8	...	...	...
38 0	1 to 25·2	...	...	...
38 0	1 to 30·9	1 to 266·6	1 to 8·6	...
38 0	...	...	1 to 8·2	...
40 0	1 to 42·2	...	...	...
40 0	...	...	1 to 7·6	Negro.
40 0	...	...	1 to 8·	...
40 0	...	...	1 to 7·7	...
40 0	...	...	1 to 7·8	...
42 0	1 to 49·7	...	...	...
44 0	...	...	1 to 8·	...
44 0	1 to 33·7	...	...	...
44 0	1 to 30·4	...	...	...
44 0	1 to 36·2	...	...	...
47 0	1 to 27·8	...	...	...
50 0	...	...	1 to 8·4	Lithuanian.
51 0	1 to 35·8	...	...	...
54 0	1 to 50·2	1 to 424·7	1 to 8·4	...
54 0	...	...	1 to 8·4	...
60 0	1 to 44·3	...	...	...
60 0	1 to 32·9	...	...	...
60 0	1 to 35·5	1 to 281·6	1 to 8·4	...
62 0	1 to 32·3	...	...	...
65 0	1 to 43·1	...	...	...
66 0	...	...	1 to 9·	...
80 0	...	...	1 to 8·	...

The average proportion of the Cerebellum, with the Pons Varolii and Medulla Oblongata, to the Encephalon, in 17 males between 25 and 55 years of age, is 1 to 7·93.

TABLE V.—FEMALES.

Ages.	Ratio of Encephalon to Body.	Of Cerebellum, &c. to Body.	Of Cerebellum, &c. to Encephalon.
Yrs. mo.			
1 8	1 to 5·7	1 to 45·3	1 to 7·9
2 3	...	...	1 to 8·3
3 0	1 to 7·7	1 to 80·	1 to 10·
6 0	...	...	1 to 6·9
8 0	1 to 20·3	1 to 153·6	1 to 7·55
17 0	1 to 34·5	...	...
17 0	1 to 44·8	...	...
18 0	1 to 37·	1 to 361·6	1 to 9·5
18 0	...	...	1 to 7·3
21 0	...	...	1 to 8·6
21 0	1 to 32·6	1 to 266·6	1 to 8·16
23 0	1 to 30·5	...	...
24 0	1 to 38·9	1 to 325·5	1 to 7·6
25 0	1 to 27·	...	...
28 0	1 to 33·7	...	...
29 0	...	...	1 to 7·6
31 0	1 to 29·9	...	...
32 0	1 to 45·	1 to 326·	1 to 7·9
33 0	1 to 35·3	1 to 316·2	1 to 8·2
34 0	1 to 29·3	1 to 339·1	1 to 8·9
34 0	1 to 34·6	...	...
36 0	1 to 44·8	...	...
36 0	1 to 34·6	...	...
36 0	...	...	1 to 7·8
39 0	1 to 38·	...	...
39 0	...	...	1 to 7·2
40 0	...	...	1 to 8·
40 0	1 to 24·1	1 to 213·3	1 to 8·8
41 0	...	...	1 to 7·6
42 0	1 to 28·5	1 to 219·8	1 to 7·6
50 0	1 to 30·3	1 to 259·	1 to 8·5
52 0	1 to 24·8	...	...
63 0	...	...	1 to 9·2
64 0	...	...	1 to 7·2
65 0	...	...	1 to 7·3
76 0	...	...	1 to 7·8

The ratio of Cerebellum, with Pons Varolii and Medulla Oblongata, to the Encephalon, in 12 females between 25 and 55 years of age, is 1 to 7·98.

Exhibiting the Weights of the Heaviest and Lightest Encephalon, Cerebrum, and Cerebellum, with the Pons Varolii and Medulla Oblongata, together with their average weights, in MALES, at different periods of life. The calculations contained in this and the following Tables are founded on the whole of the data collected by Dr Reid and myself.

AGES.	NUMBERS WEIGHED.			HEAVIEST.			LIGHTEST.			AVERAGE.		
	Encephalon.	Cerebrum.	Cerebellum.	Encephalon.	Cerebrum.	Cerebellum, &c.	Encephalon.	Cerebrum.	Cerebellum, &c.	Encephalon.	Cerebrum.	Cerebellum, &c.
9 months.	1	1	1	27	8	3	...	...	...	...	...	...
1 to 2 years.	2	1	1	39	12	4	38	0	4	42	15 ³ ₇	4
2 to 5 ...	5	5	5	45	4	6	39	8	8	42	10 ³ ₄	5
5 to 7 ...	4	4	4	47	10 ¹ ₂	6	39	12	9	42	10 ³ ₄	5
7 to 10 ...	6	6	7	52	14	5	40	12	10	46	2 ¹ ₆	5
10 to 13 ...	4	3	3	55	0	6	43	8	5	50	1 ¹ ₂	5
13 to 16 ...	5	4	4	50	2	8	43	10	6	47	8 ³ ₄	6
16 to 20 ...	8	7	7	56	0	7	40	4	5	50	12 ³ ₄	6
20 to 25 ...	16	10	11	61	2	7	47	0	8	52	2 ¹ ₆	6
25 to 30 ...	24	15	15	56	8	7	38	0	5	49	9 ¹ ₂	6
30 to 40 ...	41	28	28	62	8	8	40	8	4	51	0 ¹ ₂	6
40 to 50 ...	44	32	32	62	12	7	34	0	5	49	3 ³ ₄	6
50 to 55 ...	22	20	21	59	0	8	42	2	6	48	3 ³ ₄	6
55 to 60 ...	10	8	8	52	14	4	39	0	5	48	1 ¹ ₆	6
60 to 70 ...	18	10	12	60	4	6	40	0	4	48	8	5
70 to 80 ...	5	5	5	54	10	8	43	8	4	48	1 ¹ ₂	5
80 to 90 ...	3	3	3	52	0	6	40	12	5	49	13 ³ ₈	6
Total, -	218	162	167									

The average weight of the Encephalon, in 131 males, between 25 and 55 years of age, is 50 oz. 3³₄ dr. or 50 oz. 25 dr. The extremes between these ages being 62 oz. and 12 dr., or 12 oz. 8⁷₅ dr. above the average.

The average weight of the Encephalon in 19 persons between 10 and 20 years of age is 49 oz. 10⁶₇ dr. and 34 oz. 16 oz. 3²₅ dr. below.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

The average weight of the Cerebrum, in 95 males, between 25 and 55 years of age, is 44 oz. 3⁴₈ dr. and 34 oz. 48 7⁰₅ dr.

TABLE VIII.

Exhibiting the different Weights of the Encephalon, in Males and Females, between 25 and 55 years of age.

MALES.					FEMALES.						
Weights.			Number weighed.	Ratio per cent.		Weights.			Number weighed.	Ratio per cent.	
oz.	oz.	dr.				oz.	dr.	oz.			
34	...		1	0.76	8.3	36	12	to 40	9	12.2	54.
38	...		1	0.76		40	0	to 45	31	41.8	
40	to 45	0	9	6.8	74.04	45	0	to 50	27	36.4	45.9
45	to 50	0	51	38.93		50	0	to 55	7	9.4	
50	to 55	0	46	35.1	17.5						
55	to 60	0	19	14.5							
60	to 62	12	4	3.05							
			131						74		

TABLE IX.

Exhibiting the Average Weights of the Encephalon, Cerebrum, and Cerebellum, with the Pons Varolii and Medulla Oblongata, at different ages, in the two sexes.

AGES.	ENCEPHALON.		CEREBRUM.		CEREBELLUM, WITH PONS VAROLII AND MED. OBLONG.	
	Males.	Females.	Males.	Females.	Males.	Females.
2 to 5	42 15 ^{3.7} ₅	37 11 ^{7.5} ₈	38 1 ⁵ ₅	33 8	4 14 ^{3.25} ₅	4 3 ⁷ ₅
5 to 7	42 10 ³ ₄	38 5	37 7 ² ₂	33 10 ¹ ₄	5 3 ¹ ₄	4 10 ³ ₄
7 to 10	46 2 ⁴ ₁₆	41 4 ¹ ₂	40 8 ³ ₈	36 8 ³ ₄	5 10 ² ₂	5 3 ³ ₅
10 to 16	46 10 ⁶ ₉	42 4	42 6	36 7	5 15 ¹ ₂	5 13
16 to 20	50 12 ⁵ ₈	44 13 ¹¹ ₁₃	43 8 ⁷ ₇	39 0 ³ ₈	6 5 ⁶ ₇	5 11 ³ ₈
20 to 25	52 2 ⁴ ₄	46 12 ¹² ₁₃	45 10 ⁴ ₁₀	41 6 ³ ₁₀	6 6 ¹ ₁₁	5 11 ³ ₁₀
25 to 55	50 3 ^{3.4} _{13.1}	44 14 ^{2.3} _{7.4}	44 3.4	39 3.3	6 4 ^{0.5} _{10.5}	5 10 ¹ ₂
55 to 60	48 1 ⁶ ₁₀	43 10	42 8 ¹ ₈	35 10	6 3 ¹ ₈	5 3
60 to 70	48 8	43 3 ⁵ ₁₄	43 8 ⁴ ₁₀	37 10 ⁵ ₁₄	5 13	5 9
70 to 80	48 1 ³ ₅	42 11	42 3 ³ ₅	37 0	5 13 ³ ₅	5 8

Weight of Encephalon between 25 and 55 years of age—Males.....		Oz.	Dr.
Females		50	3 ³⁴ _{13.1}
		44	14 ²⁷ _{4.3}
		Difference, 5 4.95	
Ratio of Female to Male Encephalon.....		as 1 to 1.11	
Weight of Cerebrum.....		Males.....	44 3.4
		Females.....	39 3.3
		Difference, 5 0.1	
Ratio of Female to Male Cerebrum.....		as 1 to 1.12	
Weight of Cerebellum with Pons and Medulla.....		Males....	6 4.05
		Females	5 10.5
		Difference, 9.55	
Ratio of Female to Male Cerebellum, &c.....		as 1 to 1.10	
Weight of Cerebellum only.....		Males.....	5 3.6
		Females	4 12.4
		Difference, 7.2	
Ratio of Female to Male Cerebellum		as 1 to 1.09	

TABLES X. and XI. exhibiting the proportion of the Weights of the Encephalon and of the Cerebellum, with the Pons Varolii and Medulla Oblongata, to the Weight of the whole Body at different Ages.

TABLE X.—MALES.

Ages.	Numbers Weighed.	Encephalon to Body.	Numbers Weighed.	Cerebellum, &c. to Body.
9 months	1	1 to 7·8	1	1 to 72·
1 year & 11 months	1	1 to 14·3	...	...
3 years	1	1 to 8·	1	1 to 71·1
4 to 5 years	2	1 to 8·9	2	1 to 80·
5 ...	2	1 to 9·8	2	1 to 74·8
7 ...	2	1 to 10·3	2	1 to 87·3
11 ...	1	1 to 12·2	...	...
13 to 15 ...	3	1 to 19·1	3	1 to 140·8
18 ...	1	1 to 37·	1	1 to 322·9
20 to 25 ...	9	1 to 35·2	7	1 to 301·5
25 to 30 ...	13	1 to 40·4	7	1 to 259·
30 to 40 ...	15	1 to 38·3	10	1 to 298·5
40 to 50 ...	20	1 to 34·	12	1 to 212·3
50 to 55 ...	10	1 to 37·8	8	1 to 317·4
55 to 60 ...	2	1 to 40·2	2	1 to 341·4
60 to 70 ...	8	1 to 39·7	4	1 to 365·9
89 ...	1	1 to 26·2	1	1 to 22·6

Ratio of Encephalon to body in 58 Males between 25 and 55 years of age.....1 to 37·2
Extremes*.....1 to 79·8 and 1 to 25·2

Ratio of Cerebellum with Pons Varolii and Medulla Oblongata to body in 44 Males, between 25 and 55 years of age.....1 to 277·1
Extremes*.....1 to 424·7 and 1 to 244·5

TABLE XI.—FEMALES.

Ages.	Numbers Weighed.	Encephalon to Body.	Numbers Weighed.	Cerebellum, &c. to body.
1 year & 8 months	1	1 to 5·7	1	1 to 45·3
2 to 3 years	3	1 to 8·1	3	1 to 66·1
3 to 4 ...	3	1 to 8·2	3	1 to 83·3
7 to 8 ...	4	1 to 14·8	4	1 to 116·9
12 ...	1	1 to 26·1	1	1 to 194·9
16 to 20 ...	6	1 to 34·5	4	1 to 268·1
20 to 25 ...	6	1 to 30·9	4	1 to 268·5
25 to 30 ...	5	1 to 35·9	3	1 to 306·6
30 to 40 ...	16	1 to 35·	9	1 to 289·1
40 to 50 ...	7	1 to 32·2	6	1 to 284·9
50 to 55 ...	2	1 to 21·1	1	1 to 293·2
55 to 60 ...	2	1 to 36·5	2	1 to 307·6
60 to 70 ...	4	1 to 35·2	4	1 to 274·1
At 75 ...	1	1 to 36·8	1	1 to 282·6
At 90 ...	1	1 to 51·5	1	1 to 371·0

Average ratio of Encephalon to body in 30 Females between 25 and 55 years of age,
1 to 33·5

Extremes*.....1 to 44·8 and 1 to 24·1

Ratio of Cerebellum with Pons Varolii and Medulla Oblongata to body in 19 Females, between 25 and 55 years of age.....1 to 290·7

Extremes*.....1 to 326, and 1 to 213·3.

TABLE XII.

RATIO of the Weight of the Cerebellum, and of the Cerebellum with the Pons Varolii and Medulla Oblongata, to the Encephalon, in the two sexes at different periods of life, in 170 and 278 persons respectively.

MALES.

Ages.	Numbers Weighed.	Cerebellum to Encephalon.	Numbers Weighed.	Cerebellum, &c. to Encephalon.
4 months	1	1 to 11·	1	1 to 9·16
1 year	1	1 to 9·93	1	1 to 8·33
2½ years	1	1 to 9·53	1	1 to 7·99
3 ...	1	1 to 9·87	1	1 to 8·77
3½ ...	1	1 to 10·29	1	1 to 9·07
4 ...	1	1 to 9·73	1	1 to 8·41
4½ ...	1	1 to 11·09	1	1 to 9·59
5 to 7 ...	3	1 to 9·74	4	1 to 8·20
7 to 10 ...	4	1 to 9·42	6	1 to 8·04
10 to 13 ...	3	1 to 9·47	3	1 to 8·82
13 to 16 ...	1	1 to 9·09	4	1 to 7·91
16 to 20 ...	4	1 to 9·42	7	1 to 7·58
20 to 25 ...	5	1 to 9·68	10	1 to 8·18
25 to 55 ...	55	1 to 9·58	95	1 to 8·05
55 to 90 ...	15	1 to 9·94	28	1 to 8·10
	—		—	
	97		164	

FEMALES.

1 year and 8 months	1	1 to 8·79	1	1 to 7·94
2¼ years	1	1 to 9·30	1	1 to 8·31
2½ ...	4	1 to 10·00	4	1 to 8·48
3 ...	...	...	1	1 to 10·28
3 ...	...	...	1	1 to 9·33
3½ ...	1	1 to 10·07	1	1 to 9·33
5 and 6 ...	2	1 to 10·64	3	1 to 8·71
7 and 8 ...	3	1 to 9·47	4	1 to 7·88
12 ...	1	1 to 8·48	1	1 to 7·10
15 ...	1	1 to 9·11	1	1 to 7·45
16 to 20 ...	6	1 to 9·12	9	1 to 7·97
20 to 25 ...	4	1 to 7·57	10	1 to 7·25
25 to 55 ...	34	1 to 9·34	58	1 to 7·87
55 to 90 ...	15	1 to 9·31	19	1 to 7·80
	—		—	
	73		114	

Ratio of the several portions of the Encephalon in the two sexes, in persons between 25 and 55 years of age :—

	Males. 1000	Females. 1000
Encephalon,		
Cerebrum,	875·8	872·9
Cerebellum,	104·3	107·
Pons Varolii and Medulla Oblongata,	19·9	20·1

CONCLUSIONS.

1st, The encephalon in the adult male weighs, on an average, 50 oz. 3.25 dr., or 3 lb. 2 oz. and $3\frac{34}{131}$ drachms avoirdupois, and exceeds in weight that of the female by 5 oz. 4.95 dr., the latter weighing on an average 44 oz. and 14.3 dr., or 2 lb. 12 oz. $14\frac{28}{74}$ dr.

Of 131 male brains weighed, the heaviest was 62 oz. 12 dr., or 12 oz. 8.75 dr. above the mean; the lightest was 34 oz., or 16 oz. 3.25 dr. below it.

Of 74 female brains, the extremes were 54 oz., or 9 oz. 1.7 dr. above the average, and 36 oz. 12 dr., or 8 oz. 2.3 dr. below it.

Of the male encephala, 8.3 per cent. were under 45 oz. in weight, 74.04 per cent. weighed between 45 and 55 oz., and 17.5 per cent. exceeded 55 oz. in weight.

Of the female encephala, 54 per cent. weighed under 45 oz., 45.9 per cent. were between 45 and 55 oz. in weight, and none exceeded 55 oz.

Note.—A comparison of these averages with those deduced by Dr Reid, will show that they correspond very closely, though the numbers on which the calculations are based are considerably extended. They do not differ, also, very greatly from the conclusions of Sir William Hamilton, Dr Sims, and Dr Clendenning. Sir W. Hamilton estimated the weight of the adult male encephalon at 3 lb. 8 oz. troy, and the female at 3 lb. 4 oz., which are nearly 48 oz. 5 dr., and 43 oz. 15 dr. avoirdupois. On calculating the weights of the brain in the two sexes separately, from the observations published by Dr Sims, I find the male brain, in 54 persons between 20 and 60 years of age, to average 47 oz. 13 dr., and the female brain in 58 persons, 44 oz. and 10 dr. Dr Clendenning states the male brain in persons between 21 and 60 years of age to average 45.85 oz., and the female 41.25 oz. These several averages, together with those deduced by Professor Reid and myself, range between $45\frac{3}{4}$ oz. and $50\frac{1}{4}$ oz. for the male, and $41\frac{1}{4}$ oz. and nearly 45 oz. for the female.

Tiedemann,¹ whose actual observations amount to only 52 (35 males and 17 females), states the weight of the adult European encephalon to vary in the male between 3 lb. 2 oz. and 4 lb. 6 oz. troy, or 41 oz. 12 dr. and 59 oz. 5 dr. avoirdupois, and in the female, between 2 lb. 8 oz. and 3 lb. 11 oz. troy, or 35 oz. 2 dr. and 51 oz. 11 dr. avoirdupois.

The want of accurate information as to the number of observations on which their calculations are based, of the weights employed, and of the ages of the persons, render the statements of the older anatomists as to the weight of the encephalon of little value. Soemmerring states,—“Cerebrum et cerebellum, resecta medulla spinali statim pone nervum lingualem medium pondo sunt librarum duarum ad tres libras; sunt enim alia cerebrata pondere

¹ Phil. Trans., vol. 127, p. 497.

librarum duarum et unciarum quinque cum dimidia, alia librarum trium et unciarum trium cum tribus quartis. Aliis (referring to the weights of brain assigned by Haller, *Elementa Physiologiæ*, t. 4, p. 10) observata sunt cerebra libræ unius cum dimidia, aliis pondus librarum quinque superantia, quod posterius vero haud verisimile videtur, nisi forte diverso hexagio res rite interpretari possit." (De corporis humani fabrica, t. 4, f. 38.) He adds, in a note, "In univsum quidem Hallerus cerebrum pondere esse librarum quinque autumat, rectius certe quatuor, si de pondere pharmaceutico Germanico sermo est. Certe enim inter plura quam ducenta cerebra à me disquisita nullum inveni quod quatuor sit librarum." From this it appears that Soemmerring employed the German or Nuremberg pound of 5524·8 grains, and the weights which he gives consequently vary between 31 oz. and 41 oz. 14 dr. avoirdupois, much below the estimates of more recent observers; but as he imagined the brain to attain its full development at 3 years of age, and has not specified that the weights referred to were those only of adults, we may infer that he included in his calculation the brains of persons in early life. The estimate of the Wenzels seems more nearly correct:—"Pondus encephali humani, quale id de quinto vitæ anno ad summam usque hominis senectutem plerumque invenitur, pondus viginti quatuor millium granorum non superat. * * * Totius cerebri pondus inter viginti et viginti duo millia; cerebri strictius dicti inter octodecem et viginti millia granorum plerumque variat." (De penitiori structura Cerebri Hominis et Brutorum, f. 267.) The weight of the encephalon thus given is from 45 oz. 12 dr. to 50 oz. 5 dr. avoirdupois; and, as including persons in early and advanced life, and of both sexes, is sufficiently exact. The weight of the encephalon is estimated by Portal at 48 oz. 3½ dr. avoirdupois; and by Meckel, if his weight be the German lb., at 43 oz. and 11 dr. avoirdupois. M. Lélut¹ estimates the weight of the encephalon of the male adult at 1320 grammes, or 46 oz. 10 dr. avoirdupois; and M. Parchappé² at 1323 grammes, or 46 oz. 11 dr., and that of the female at 1210 grammes, or 42 oz. 11 dr. avoirdupois.

2d, The human encephalon appears ordinarily to attain its maximum of development at from the 20th to the 25th year; throughout the middle period of life it displays little variation, but a very marked decrease in weight obtains in advanced age. This conclusion is uniformly borne out by the weights of the encephalon at different ages in both sexes; nor do the tables afford any support to the opinions of Soemmerring, the Wenzels, and Sir W. Hamilton, that the brain arrives at perfection in or before the 7th year. Though

¹ Gazette Médicale de Paris, 2me serie, t. v., 1837, p. 146.

² Ibid. See also M. Parchappé's Memoir, t. x., 1842, p. 650, where he gives the weight of the encephalon in males, 1352 grammes; and in females, 1229.

it may occasionally happen that the brain of a person in early life shall be found as heavy as are ordinarily the brains of adults, yet the average of the weights of several brains between 10 and 20 years of age, is uniformly less than that afforded by the brains of persons between 25 and 55 years of age.¹

Note.—The gradual increase in the weight of the encephalon up to adult age, accords with the conclusions of Dr Sims, and with the views of Gall and Spurzheim. Soemmerring, however, from one observation, inferred that the brain attained its full weight at 3 years of age, and the Wenzels at 7. The latter age has also been regarded by Sir W. Hamilton as the probable term of growth of the brain. The present observations further confirm the inference, that contrary to the supposition of the Wenzels and Sir W. Hamilton, the encephalon decreases in weight in advanced life. In reference to Sir W. Hamilton's observations, it may be remarked that the actual weights of human brains can alone form just data for conclusions; and that it seems scarcely possible that any method of ascertaining the size of the brain from examination of the skull can be free from fallacy²—an objection especially applicable to estimates so formed of the weight of the brain in advanced age, when, as is well known, the ventricular cavities and subarachnoidal cellular tissue often contain much fluid.

3d, The excess of weight of the male over the female encephalon, is observed at an early age, and continues throughout the course of life. This inference is applicable after the commencement of the second year; before that period the data are too imperfect to allow of any conclusions being founded upon them.

4th, The average weight of the cerebrum in adult males, is 44 oz. 3·4 dr., and in females, 39 oz. 3·3 dr.; the cerebrum of the male therefore exceeds in weight that of the female by 5 oz. 0·1 dr.

5th, The cerebellum, with the pons Varolii, and medulla oblongata, averages in adult males, 6 oz. 40·5 dr.; in females, 5 oz. 10·5 dr.—the excess in the male being 9·55 dr.

6th, The cerebellum alone, calculated from Professor Reid's observations, averages in the adult male 5 oz. 2·6 dr., and in the female 4 oz. 12·4 dr.—the difference being 6·2 dr.

7th, It has been seen that the encephalon may be regarded as attaining its maximum of development at from the 20th to the 25th year, and declines in weight in advanced life. The same law obtains in reference to the development and decline of its several portions. It would, however, appear probable that the cerebellum,

¹ These results accord with Dr Reid's previous inferences. The decrease in the weight of the encephalon in advanced life, is, it will be observed, much more marked in females than in males.

² Sir W. Hamilton states his observations to have been founded "on inductions from above 60 human brains, and from nearly 300 human skulls of determined sex, the capacity of which, by a method I devised, was taken in sand, and the original weights of the brain thus recovered."—*Monro's Anatomy of the Brain*, 1831.

with the pons Varolii and medulla oblongata, arrive at their full growth somewhat earlier than the cerebral hemispheres. This surmise is supported by the weights of the former portions of the brain between 10 and 20 years of age, exceeding in females their weight in the adult, and being in males very slightly less than their weight in the adult. The results given in the tables are, however, unfavourable to the idea of Sir W. Hamilton, that the cerebellum attains its maximum of development at about the 7th year—an opinion opposed also by the weights of the cerebellum alone, as given by Professor Reid.

8th, The excess which obtains in the weight of the encephalon of the male over that of the female, exists also in each of the several portions of the brain,—the cerebrum, the cerebellum, with the pons Varolii and medulla oblongata, and the cerebellum alone, being uniformly heavier in the male than in the female. The excess in the weight of each of these portions of the brain in the male over their weight in the female, maintains a very similar ratio, a fact opposed to the conclusion of Sir W. Hamilton, “that almost the whole difference in the weight of the male and female encephali lies in the brain proper, the cerebella of the two sexes absolutely being nearly equal; the preponderance being rather in favour of the female.”

9th, The relative proportion of the encephalon to the whole body undergoes a gradual decrease from infancy to adult age; and averages in males, at from 25 to 55 years of age, 1 to 37·2, presenting during this period a range of from 1 to 79·98 to 1 to 25·2, according to the state of emaciation or corpulence of the body weighed.

In females the average during adult life is 1 to 33·5, and the extremes 1 to 44·8 and 1 to 24·1. It will be seen that, as before remarked by the Wenzels and Tiedemann, the female brain, though absolutely lighter than that of the male, maintains a higher proportion relatively to the weight of the body.

10th, The proportions, relatively to the whole body, of the cerebellum with the pons Varolii and medulla oblongata, and of the cerebellum alone (as shown by Dr Reid’s observations), also gradually decrease from infancy, and at adult age the former averaged in males 1 to 277·1, presenting the extremes of 1 to 424·7 and 1 to 244·5.

The proportion in adult females is 1 to 290·7, and the extremes 1 to 326· and 1 to 213·3.

Tiedemann found the relative proportion of the encephalon to the body in adults as 1 to 35 and 1 to 45, and the extremes 1 to 22 and 1 to 50 to 100.

11th, The proportion which, in the adult, the cerebellum with the pons Varolii and medulla oblongata bear to the whole encephalon is 1 to 7·8, and is nearly the same in the two sexes, being as 1 to 8·057 in the male and 1 to 7·87 in the female.

Dr Reid had been led to infer that the cerebellum with the pons Varolii and medulla oblongata was relatively to the encephalon

heavier, in a somewhat higher proportion, in the female than in the male, being as 1 to 7.9 and 1 to 8.6 respectively. His calculations are, however, founded on the weights of 53 male and 34 female brains, while the present tables include 96 and 58 weights. From my own observations separately, the proportions are as 1 to 7.98 in females, and 1 to 7.93 in males.

12th, The ratio of the weight of the cerebellum alone to that of the whole encephalon, is, in the male, between 25 and 55 years of age, 1 to 9.58, and in the female 1 to 9.34.

13th, The relative proportion of the cerebellum to the cerebrum in adults of the two sexes, as calculated from Dr Reid's data, is in males 1 to 8.37; in females 1 to 8.28. Sir W. Hamilton states, "that the cerebellum in the female is in general considerably larger in proportion to the brain proper than in the male; in the female it is as 1 to 7.6, in the male as 1 to 8.4." The calculations now given show the weights of the cerebellum with the pons Varolii and medulla oblongata, and of the cerebellum alone, to be, relatively to that of the whole encephalon, somewhat higher in females than in males. This inference is not, however, confirmed by the observations of M. Parchappe; and the difference which, from the present data, appears to exist, is much less than was supposed by Sir W. Hamilton. It is, therefore, very questionable how far the excess of weight in females can be regarded as constituting a general rule.

14th, Though the data now published are defective in weights of the whole encephalon and its several portions, in infants and young persons, they render it most probable that the ratio of the cerebellum alone, or with the pons Varolii and medulla oblongata, to the cerebrum and encephalon, undergoes but little change during the whole period of life, after the expiration of the first year. Further observations are required on this point;—the facts at present recorded are, however, opposed to the surmise, that the cerebellum attains its complete state of development at a period much anterior to that of the rest of the brain.

ARTICLE III.—*Case of Amputation at the Knee Joint.* By GEORGE WILLIAMSON, M.D., Assistant-Surgeon to the Forces.

WILLIAM LANE, 18 years of age, a tailor, enjoyed good health until about the beginning of July 1845. When carrying a child in his arms, his foot slipped into a hole, and his knee came against the bank; but he states, that for some time previous he found this knee weaker than the other. It now began to swell; he had great pain in the joint, for which leeches and blisters were applied, and an abscess formed on the inner side of the knee. He went to London, and was admitted into Guy's Hospital on the 6th of

August, where, he states, several blisters and iodine ointment were applied, without much relief. He was now advised to go to the country for the benefit of his health, which was very much impaired, and he was discharged from hospital on the 18th December.

He now came under the care of Mr Steddy, surgeon, Chatham, with whom I saw him for the first time on the 28th December. His general health was good; he never had cough or pain in the chest, which was clear on percussion; he was very much emaciated, had hectic and night sweats. His left knee joint had become much worse since he left hospital, abscesses and sinuses surrounded it in all directions; there was a large abscess on its upper and outer side, which was opened with some relief; on introducing a probe, bare bone could not be felt. The limb was very much emaciated, the knee bent and contracted, and the slightest motion caused great pain. As no doubt was entertained of the diseased condition of the joint, it was proposed to remove the limb; which was accordingly performed on the 31st December, in presence of James French, M.D., Deputy-Inspector-General, Staff-Surgeon Dartnell, and Mr Steddy, surgeon.

An incision was made across the front of the joint, nearly on a level with the lower margin of the patella, the skin dissected up, and the joint opened into above this bone; the ligaments were then divided and a flap made from the muscles of the calf of the leg, the incision being carried down to the lower part of the gastrocnemii, and the condyles of the femur sawn off. Very little blood was lost during the operation, and four arteries required to be tied. There were several abscesses in the flap, and one of large size situated in front of the femur, extending for about two inches upwards, the muscles being partially destroyed and completely detached from the bone; the latter, however, was covered with periosteum and condensed cellular substance. The flap appeared to be rather too long, but narrow, on account of the emaciated condition of the limb; sutures were at once inserted, adhesive plaster and water dressing applied. *R. sol. muriat. morph. gr. xxx. mixt. camph. ʒss. fiat haustus hora somni sumendus.*

Appearances of the Joint.—Cartilages covering the femur and tibia at several parts entirely destroyed, particularly on the internal condyle and corresponding surface of the tibia; the remainder smooth and of a healthy appearance; internal semilunar cartilage destroyed; reflected synovial membrane thick and pulpy, ligaments entire; parts surrounding the joint condensed.

1st January. Slept well, pulse 110, tongue clean, bowels open, stump looks well.

3d. Going on favourably, appetite good, pulse 100, tongue clean, bowels constipated.

The stump was dressed this morning; union is taking place, discharge healthy. *Sumat statim, ol. ricini, ʒss.*

4th. Was very restless during the night, and slept little, pulse 120, skin hot, tongue dry, discharge from stump rather diminished. In the afternoon he became very rapidly worse, and apparently fast sinking; when seen at eight P.M. he had low muttering delirium, subsultus and picking of the bed clothes, pulse extremely rapid and feeble; he passed his fæces involuntarily, and the discharge from the stump had almost entirely ceased; it was now opened, and a poultice applied. Was ordered one-half grain of morphia, and in two hours after fell into a sound sleep.

5th. Is perfectly sensible, pulse 110, skin cool, tongue moist, bowels open. The discharge from the stump has returned, and the wound is again closed with adhesive plaster, and simple dressing applied.

12th. Since last report, the patient's general health has very much improved, appetite good, and functions natural. The ligatures have all separated; the stump, however, has not progressed, no union has taken place; the discharge has a fetid smell, and is of an unhealthy character; and the margin of the femur is denuded, and partially necrosed. Lotions of sulphate of zinc and copper are used alternately. Has nourishing diet, wine, and porter. R. Disulph. quiniæ gr. xxiv., acid. sulph. dilut. ℥j., aquæ ℥vj. Fiat mistura; sumat ℥j ter indies.

18th. Health still continues good, tongue clean, and bowels open, pulse 90. A red inflammatory blush on the skin, covering the front of the femur, where the extremity of the bone is causing ulceration. As there is no appearance of union taking place, the surface being particularly callous, the wound is left open, and a poultice applied; ordered Plummer's pill every night.

26th. The stump remains in the same state, not showing the slightest disposition to granulate, being covered with a thick yellow film of lymph. The anterior aspect of the extremity of the femur, as stated at the time of the operation to have been separated from the surrounding muscles, still presents the same appearance; the flap, as also the skin in front, have become absorbed, and retracted to such an extent, that it is deemed advisable to take away the projecting portion of bone,—an inch and a half of which was sawn off. On examining the part removed, it was observed that three lines of the margin of the external shell, embracing its whole circumference, was necrosed. The flap was rubbed roughly with a hard sponge, with the view of exciting action in the parts, and then brought together with adhesive plaster, and a lotion of sulphate of copper applied.

1st February. The stump still presents the same unhealthy appearance, its surface being coated with thick tenacious yellow lymph, and the posterior flap has contracted very much; the muscles in front are also absorbed, and the skin separated from the subjacent parts; the discharge scanty, watery, and occasionally mixed with blood.

General health and appetite good ; diet ; any food he has a relish for, with wine and porter.

20th. No improvement has taken place in the wound ; it has the same smooth unhealthy surface. The integuments in front, but particularly the posterior flap, have contracted very much, and there is hardly enough to cover the end of the bone, the anterior margin of which shows a disposition to protrude through the posterior flap. The stump has been dressed every second or third day with various applications,—lotions of sulphate of zinc and copper, and tincture of iodine ; it has also been touched with blue stone and lunar caustic. The surface has just been shaved off, and touched with nitrate of silver. General health continues much as usual.

10th March. Some improvement has taken place in the stump ; the integuments in front now only come to the margin of femur, but are adherent ; the posterior flap, notwithstanding the utmost care in the dressing, has fallen back behind the bone ; a portion of the flap, however, still covers, and adheres to the extremity of the femur, the anterior margin of which has protruded through the soft part, and is bare, and partially necrosed.

On the internal side there is a deep hollow, and on the external the muscular fibres are smooth and glistening. The wound is dressed with adhesive plaster and dry lint. Although he makes no complaint, he appears to be weaker, and the right lower extremity has become œdematous.

20th. Has had diarrhœa for the last few days, with slight cough without expectoration ; appetite good, but he is evidently weaker. Union is now sufficiently strong to admit of the discontinuance of the adhesive plaster ; action is still very sluggish in the internal and external aspect of the stump.

28th. Diarrhœa has ceased, cough continues, and his breathing is accelerated on the slightest exertion. The upper part of the amputated extremity is œdematous ; abdomen enlarged, and fluctuation perceptible ; appetite bad, and he is daily becoming weaker.

3d April. Stump remains in the same state ; has cough, with purulent expectoration, and difficulty in breathing ; he is evidently sinking from tubercular disease of the lungs. He continued in this state, and died on the 6th April. For the last few days, astringents, expectorants, diuretics, and anodynes, were administered.

Post-Mortem Appearances.—Body very much emaciated ; right lower extremity and upper half of the left thigh œdematous ; abdomen enlarged. Right lung adhered firmly and universally to the walls of the chest, by adhesions of old standing. Structure entirely disorganized, filled with tubercles, in different stages of advancement, condensed, and contained many large irregular cavities, particularly the superior lobe. Apex of left lung adhered to the thoracic parietes ; $1\frac{1}{2}$ lb. of serum in the lower and back part of this pleural sac. Superior lobe in the same condition as the

right lung; a few clusters of miliary tubercles in the inferior lobe. Pericardium contained 2 oz. of serum; $2\frac{1}{2}$ lbs. of serum in the cavity of the abdomen. Liver and spleen healthy; kidneys presented the first stage of granular degeneration.

As to the condition of the stump, almost the whole of the flap lay behind the bone, which it partially covered, and adhered to the extremity of the femur. The entire circumference of the external margin of the bone had exfoliated, two portions of which were still undetached. The skin in front barely extended to the end of the femur, notwithstanding its length after the operation and subsequent removal of a portion of the bone. On dissecting the limb the arteries and veins were found to be healthy; the popliteal vessels very tortuous; the gastrocnemii muscles contracted to the size of an egg, and had no bony attachment; there was a small abscess in the muscles in front; the peroneal nerve lay quite bare on the surface of the wound.

This case presents several features worthy of notice.

With regard to the performance of the operation, the anterior incision was made a little too low, being nearly on a level with the inferior margin of the patella, thus forming a flap of integuments only, and the extremity of the femur pressing upon it caused ulceration. Even had the wound healed by the first intention, the thin covering of skin in front would always have been the source of annoyance to the patient when the slightest pressure was applied. The stump, immediately after the operation, had very much the appearance of a limb after amputation by the anterior and posterior flaps. The posterior flap appeared at first to be too long; it was narrow on account of the emaciated condition of the limb, which is generally the case in disease of the knee joint, not admitting of the formation of one of greater breadth.

From the fourth day after the operation, when the alarming general symptoms, with cessation of the discharge, showed themselves, may be dated the commencement of the unhealthy appearance which the stump ever after presented; and the circumstances demanding the taking away a portion of the extremity of the femur are to be attributed to the large indurated sacs of abscesses, the surrounding condensation, the retraction of the flaps, with the extreme want of action in the parts, rendering it necessary to open the stump and apply poultices.

It is also evident from this case, that necrosis may take place after this operation, although by amputating through the cancellated structure of the bone the chance of such a result is certainly diminished. The great retraction with absorption of the posterior flap, after the portion of the extremity of the femur was sawn off, might be owing to the bony attachments of the gastrocnemii having been destroyed. The extreme want of action in the stump is very remarkable, and cannot entirely be attributed to the diseased condition of the parts, as, even after the abscesses had healed,

the induration subsided, and the surface of the stump pared, still no healing process set in, and had the limb been amputated higher up, union would, in all probability, have been tedious, and to be ascribed to constitutional causes only. It is to be inferred, that tubercles in a quiescent state existed in the lungs at the time of the operation, although there were no symptoms indicating their presence, and that their development was accelerated, and the fatal termination precipitated by the discharge from the stump having greatly diminished. It may be alleged, that the disease in this case was too far advanced to warrant this operation, but I consider the local and general symptoms to have been what are usually observed in patients affected with white swelling when amputation is resorted to. There appear to be several disadvantages in the selection of this operation in diseased knee joint, when the soft parts are much affected, and the constitution impaired; for even after the source of irritation is removed, it will be a considerable time before the parts take on a healthy action, but in cases of fracture in the upper third of the tibia, necrosis, tumours, &c., where the soft parts are comparatively healthy, amputation at the knee joint would be preferable to that in the lower third of the thigh.

My respected teacher, Professor Fergusson, in the last edition of his admirable work on operative surgery, recommends, in amputation at the knee joint, the removal of the limb by the common flap operation on the leg.

I have tried this method on the dead subject, and found considerable difficulty in getting the knife round the condyles of the femur, and would therefore prefer that recommended by Professor Syme, as being equally quick in its performance, and productive of very little more pain.

ARTICLE IV.—*Two Cases of Poisoning—I. By King's Yellow.—II. By Muriate of Morphia—with Observations.* By GEORGE PATERSON, M.D., F.R.C.P., Physician to the Royal Infirmary of Edinburgh, and Lecturer on Clinical Medicine.

ALTHOUGH from the certainty of obtaining prompt medical assistance, it is very common to send into the Infirmary cases of poisoning which occur in this city, especially those arising from accident or suicidal acts, yet their number presents a very small figure in the catalogue of diseases and accidents which fall under the treatment of the medical officers to that institution. For myself, the two which follow are the only ones that have happened in my department for upwards of a twelvemonth. But it is sometimes observed in regard to those whose opportunities of witnessing a particular class of cases are comparatively few, that such as do occur to them

present features of more than ordinary interest, and calculated to render their publication expedient, however much it were to be wished that the task had fallen to some one who had made this particular subject his especial study. This, I conceive, holds true of the cases now to be narrated, and must be my justification for placing them upon record, and for any imperfections which my account of them may present. The observations with which they are accompanied are substantially the same as were made when noticing them at the time they occurred, in the ordinary course of clinical lecturing, and will serve to explain the reasons for which I have thought that they might not be unworthy of a place in this Journal.

Case 1. Poisoning with King's Yellow—Death by supervention of Acute Bronchitis.

G. W., a young woman, aged 18, was admitted into the Infirmary May 29, 1845, at the hour of visit, with symptoms of irritant poisoning. Was believed to have swallowed a quantity of "king's yellow" on the previous evening, with a view to self-destruction; and it subsequently appeared that she had purchased a drachm of this substance at a chemist's shop, the whole of which there is reason to believe was taken. Her friends told us that this was the third attempt of the kind she had made with the same substance, owing solely, as far as they were aware, to a passionate disposition, and quarrels with some of her relations.

As nearly as could be ascertained, the poison had been taken ten or twelve hours before admission. She began to vomit at four A.M., or from two to four hours after taking it, and vomiting had continued to be frequent and pretty abundant up to the present time. No antidote had been given except milk. A beer bottle full of the matters vomited was brought along with her, and these, when examined by my friend Dr Thomas Anderson, were found to consist of milk and other contents of the stomach, having a small quantity of yellow powder suspended in them. This powder, when collected and dried, presented the usual appearance of king's yellow, and the fluid yielded the characteristic arsenical crust on being subjected to chemical re-agents.

On admission, vomiting was frequent, with great anxiety and suffering, extreme collapse, surface of body cold, and pulse scarcely perceptible. Little uneasiness of abdomen or epigastrium on pressure.—Warmth was ordered to surface, with other means of restoring the circulation and animal heat. Hydrated peroxide of iron to be freely administered.

8 P.M.—Pulse rose in an hour, and can now be distinctly felt, though still very weak; heat of surface restored; has taken the peroxide at frequent intervals. The greater part was vomited at first, but latterly it has remained on the stomach. Patient is now

sensible, and able to converse; has slight tenderness of abdomen on pressure.—A common enema. Continue the antidote, with mucilaginous drinks. Leech epigastrium, if requisite.

May 30. Noon.—Pain having increased much in night, with restlessness, and also some irritability of rectum, the leeches were applied at four A.M., and (the bowels having been previously opened) an opiate enema administered. These measures gave speedy relief, and patient has had some refreshing sleep since. Pulse quiet, but weak; epigastric tenderness almost entirely gone; bowels again opened by enema of warm water. Only complaint at present is of slight pain in larynx and trachea, increased on pressure. No return of vomiting.—To inhale; and mucilaginous drinks to be continued. Repeat opiate if necessary.

At this time the patient was perfectly composed and sensible; spoke freely of what she had done, and stated where the poison had been procured. Said she had taken it owing to “words with her brother,” and acknowledged having previously attempted self-destruction for the same reason, and in the same way, but had been frustrated by the cup being snatched out of her hand.

8 P.M.—Some vomiting since visit. Little, if any, epigastric tenderness, but has now slightly accelerated breathing, and mucous rales are audible generally over chest; has not been noticed to cough much; pulse continues very weak.—A large blister to chest; opiate draught.

May 31. Noon.—Chest symptoms increased rapidly. When seen in night, had violent cough and extreme dyspnœa, the lungs appearing to be loaded with effusion. An emetic, which was ordered, did not operate. At present has dyspnœa and mucous rale in breathing; surface cold, and pulse scarcely to be felt; tongue dry and dark. Blister has risen. Still tenderness over larynx and trachea. Urine reported to have been plentiful ever since admission. No convulsions or delirium.

The patient died in the course of half-an-hour after the visit, or about sixty hours from the time she had taken the poison.

Sectio Cadaveris—forty-eight hours after death.

Head.—Brain perfectly healthy; about 3j of clear serous fluid was found in the lateral ventricles.

Thorax.—Lungs crepitated on being cut into; the parenchyma was much engorged with frothy serum; and at several points, especially in inferior lobe of left lung, numerous patches of apoplectic extravasation of blood were noticed. Mucous membrane of bronchi in both lungs, to their minutest ramifications, intensely congested, presenting a deep brownish-red colour. The mucous membrane of the larynx and trachea presented similar appearances. Heart healthy. Blood unusually fluid, though firm colourless clots existed in the right side of the heart.

Abdomen.—Stomach contained about 4 oz. of fluid, of a dirty green colour, thick and turbid. Patches of dirty greenish coloured

mucus adhered to its internal surface. The rugæ tolerably prominent. No ulceration, effused lymph, or traces of active inflammation. Here and there some few arborescent vascular patches were observed; and in the cardiac cul de sac there was slight extravasation of blood in small patches below the epithelium. Intestines healthy throughout; their contents tinged by the same dirty greenish colour as the matters in the stomach. Liver was slightly enlarged, and had almost entirely undergone the fatty degeneration. Spleen small and friable. Kidneys both presented externally a pale granular appearance, which was found to be confined to the cortical substance. Uterus unimpregnated; vascular on its peritoneal surface, otherwise healthy. Ovaries contained one or two cysts of the size of a pea, filled with a transparent yellow-coloured fluid. Bladder healthy.

It has appeared to me, that this case may not be considered unworthy of being placed on record among instances of arsenical poisoning, when we take into account—1. The substance taken; 2. The antidote employed after the patient's admission into the Infirmary, and its apparent effects in neutralising the poison; and 3. The apparent cause of death in this patient.

1. Some interest attaches to this case on account of the fact, that the substance taken, the king's yellow, is not one which is commonly chosen for putting an end to human life. Fatal accidents, as Dr Christison informs us, have often occurred from its common use in this country as a poison for flies; but only three instances appear to have come to his knowledge in which it has been purposely taken or administered to any one. One of these cases was suicidal, like that of our patient, and proved fatal in thirty-six hours. Another was a case of attempted poisoning; and in a third instance, a mother was tried for poisoning her child with it. The sulphurets of arsenic, among which the king's yellow must be classed, are well known to be less active poisons than the soluble preparations of arsenic, or than those in which the metal is oxidated; though still after being swallowed, they become more dangerous to life than they otherwise would be, from their liability to become acted upon and changed into the oxide in animal fluids.¹ It appears, however, that the impure artificial sulphurets, such as king's yellow and the common orpiment of the shops, are a great deal more active than the pure ones: the last named of these substances, because it is really a mixture of the sulphuret and arsenious acid, and the former, because unlike the pure sulphurets, it is a soluble substance. The mode of preparation and precise chemical composition of the king's yellow (the impure sulphuret taken in the present instance), appear to be equally unknown. Dr Christison says, "I have not seen any account of the mode of preparing it, or an analysis of its composition. But, according to my own experiments, it con-

¹ Christison, 4th edit. p. 293.

tains * * * sulphuret of arsenic, caustic lime, and free sulphur; and in all probability the lime exists in the form of a triple sulphuret of lime and arsenic.”¹ It is not perhaps necessary to say more than has been said in the history given of the case, respecting the symptoms produced by this substance. They were plainly those of arsenical poisoning, and exemplify the twofold action which is usually ascribed to arsenic, whereby it is found at one and the same time to act as a local irritant on the alimentary canal, and to produce a powerful depressing effect on the system. In from two to four hours after taking the poison this patient began to vomit, and continued to do so until admission, ten or twelve hours after it had been swallowed. At this time there were symptoms of extreme collapse, the surface being cold, and pulse at wrist nearly imperceptible. In about ten hours more, under the use of appropriate remedies, the vomiting had nearly ceased, and the heat of surface and pulse at wrist had returned. Some tenderness of abdomen, however, and irritability of rectum began now to manifest themselves, but were relieved by leeches and an opiate, and the patient was so well the next morning that the immediate danger was believed by many to be past. The case ultimately proved fatal (sixty hours after the poison had been swallowed), by the occurrence of symptoms of inflammation of the tracheal and bronchial mucous membrane, as will be noticed more particularly hereafter. But so far as the symptoms have now been traced, they were, I repeat, the ordinary ones of arsenical poisoning; which in fact is no more than was to be expected from what we know of the chemical constitution of the king’s yellow. As respects the appearances found in the stomach after death, it must be acknowledged that although traces of vascularity and inflammatory action were not wanting, especially after the careful removal of the tenacious mucus adherent to its internal surface (as I am informed by Dr Traill, to whom the stomach was afterwards sent), yet there were none of those marks of severe local irritation and inflammation, which are common in arsenical poisoning, especially where, as in this case, life is prolonged for so long a period after the substance has been taken. This, however, may be ascribed partly to the fact, that king’s yellow is a less energetic substance than the preparations of arsenic which are commonly employed as poisons, and partly also to the effects of the antidote. Finally, as to the quantity of king’s yellow which was taken in the present case—the girl informed us she had swallowed a penny worth; and on inquiring at the shop of the druggist from whom it had been purchased, I found that the quantity of king’s yellow they usually sell for that sum is a drachm. We have then in the present instance, an example of poisoning by king’s yellow, or an impure sulphuret of arsenic, one drachm being the amount of the fatal dose.

¹ Christison, 4th edit., pp. 286-7.

2. The next point which demands some notice in reference to this case is the antidote employed after the patient's admission into the infirmary, and its apparent effects in neutralising the poison. Of the various substances which have been alleged to counteract the effects of arsenic, none have as yet stood the test of experience, unless it be the hydrated peroxide of iron. Of the rest, some have been found, on further trial, to be totally inefficacious; while others, such as magnesia and charcoal, have owed whatever efficacy they may possess solely to their enveloping and dividing the particles of the poison, and so protecting the coats of the stomach from its irritant action.¹ But the hydrated peroxide of iron, so far as we are yet acquainted with its effects, does appear to act as a true chemical antidote, combining with the arsenic in the stomach to form an arsenite of iron, a substance of little solubility, and consequently of little energy. And although this compound seems capable of being partially acted on by the fluids of the stomach, whereby arsenious acid is again set at liberty, yet there is stated to be a further advantage attending the use of the peroxide of iron, in that an additional dose serves at once to neutralise the arsenious acid thus set free. Consequently the antidote requires to be given repeatedly, and in excess. The remedy, it must be admitted, is of recent introduction, and has not, perhaps, received as yet a sufficient trial to enable us to rely on it implicitly. But this very circumstance gives an additional importance to the present case, where the hydrated peroxide of iron was freely and repeatedly administered, and as far as the circumstances of the case admitted, apparently with good effect. At least, under its use, and by attention to the proper means for restoring the pulse and heat of surface, the severe symptoms which our patient presented on admission passed off, and, by the next morning, she was so far recovered that, as I have already stated, the immediate danger appeared to many to be past. Even this amount of relief could scarcely have been looked for, when we consider that the poison had been ten or twelve hours on the stomach before any antidote except milk was administered; and thus, notwithstanding that the case ultimately proved fatal, I think we have here strong confirmation of the efficacy of the peroxide of iron. It will also be remembered, that the symptoms immediately preceding death were those of intense inflammation of the tracheal and bronchial mucous membrane, of which inflammation abundant evidence was discovered on post mortem examination; while the stomach and intestines were remarkably free from those traces of the action of arsenic on their coats, which it is customary to find in cases of arsenical poisoning.

3. I come now to consider the apparent cause of death in

¹ Since the above remarks were written, M. Bussy has endeavoured to show that magnesia, in the gelatinous state, acts chemically against arsenious acid; and his views have been in part confirmed by recent experiments made by Dr Christison.—(See *Monthly Journal of Medical Science* for August 1846, pp. 156 and 158.)

this patient—intense inflammation of the trachea and bronchi, and engorgement of the lungs—which is not at least among the ordinary modes in which cases of arsenical poisoning prove fatal. After the patient had been recovered from the state of collapse in which she was at the time of admission; after relief had been afforded to the subsequent symptoms of inflammation of the mucous membrane of the intestines, such as tenderness of the abdomen and irritability of the rectum, we found her, at the visit on May 30th, almost entirely free from complaint, composed and sensible, and able to converse. The epigastric tenderness was gone, the pulse quiet though weak, and she had had some refreshing sleep. The only symptom calculated to excite watchfulness at this time was slight pain on pressure of the larynx and trachea. When seen again at night, the breathing was observed to be slightly accelerated, and numerous mucous rales were heard generally over the chest. There had also been some return of vomiting, but to no great extent. The pulse continued very weak. A large blister was immediately put on the chest; but, before it could have time to rise, the chest symptoms had increased to a great degree, and with extreme rapidity,—the cough and dyspnoea becoming very severe during the night, and the lungs being evidently loaded and oppressed with effusion. And thus, in the course of about fifteen hours after the breathing was first observed to be slightly accelerated—rather more than sixty hours from the time the poison was taken—our patient expired with symptoms of intense bronchitis. The appearances found after death corresponded to those symptoms, the lungs being much engorged with serous fluid, and the lining membrane of the bronchi, as well as that lining the larynx and trachea, intensely reddened. Further, in the inferior lobe of the left lung were observed several patches of extravasated blood, giving the appearance of pulmonary apoplexy, and, doubtless, to be accounted for by the intensity of the inflammation, joined perhaps to that unusual fluidity of the blood which, according to some, is seen in cases of poisoning by arsenic, and which is specially noticed as having existed in this case. The above circumstances, taken in connexion with the previous abatement of the more ordinary symptoms of poisoning by arsenic, and the comparative absence of those appearances which we are accustomed to find in the alimentary canal, leave scarcely any room for doubt that the bronchial affection was in this instance the more immediate cause of death.

A question of considerable importance thus arises, viz., Did the bronchitis supervene accidentally in the course of this case, or was its occurrence intimately connected with the taking of the poison? It certainly is barely possible that in the hurry of removing and treating an urgent case of this kind, a degree of exposure quite sufficient to give rise to severe bronchitis might very inadvertently be permitted to take place on the part of the medical attendants or friends. But the extreme violence of these symptoms in the

instance before us, and their rapid progress to a fatal termination, would almost, I think, require some other way of accounting for them, than can be furnished on the supposition of mere inadvertent exposure to cold in the course of removal and treatment. Besides, it is well known, that in cases of irritant poisoning generally, there not unfrequently occur symptoms and appearances of inflammation of organs which are more or less distant from the parts to which the poison has been directly applied; and of the lungs among the rest. It is thus, in particular, that antimony has been shown commonly to cause death, when animals have been poisoned with it. Others of the metallic irritants also, as corrosive sublimate and copper, are stated, among the various consequences of their administration, sometimes to cause inflammation of the lungs. Again, as respects arsenic, Dr Christison tells us, "sometimes there are present signs of irritation of the lungs and air passages—almost always shortness of breath (which however is chiefly owing to the tenderness of the belly)—often a sense of tightness across the bottom of the chest, and more rarely, decided pain in the same quarter, darting also through the upper part of the chest. Sometimes pneumonia has appeared a prominent affection during life, and been distinctly traced in the dead body." In confirmation of which statement several instances will be found at p. 346 of the 4th edition of his work on poisons. It is to be observed, indeed, as respects all these irritants, that while inflammation of the lungs is mentioned by authors among the affections which may occur from their administration, in the case of none of them, excepting antimony alone, is it adverted to as an ordinary or even an occasional cause of death. Its being so in the case before us, then, must be regarded as an exception to what ordinarily occurs in poisoning by arsenic. But this is no sufficient ground for denying either that such was the mode of death here, or that the inflammation and congestion of the lungs and bronchi were closely and intimately connected with the taking of the poison. If, among the symptoms produced by arsenic, we occasionally meet with inflammation of the organs within the thorax, there is no good reason why such inflammation may not, at a time, and under particular circumstances, be the direct cause of death, and that without our being constrained to seek for any other explanation than simply the effects of the poison, in order to account for it.

But here another question occurs, as to the mode in which these remote effects of the poison may be produced, and more particularly as to how they were caused in the case now under consideration. When distant organs are thus affected in cases of irritant poisoning, the circumstance is commonly ascribed to the absorption of the substance into the blood, and its conveyance to the part through the medium of the circulation; and rightly so, as is proved by various of those poisons having been detected in the blood, the liver, the urine, &c., by their power of acting through the medium

of the skin—and what is very remarkable, by their having a tendency, in whatever way they may be introduced, to affect certain organs and secretions in preference to others. This is illustrated by the case of antimony already alluded to, which generally proves fatal by exciting pneumonia; and also by arsenic, of which Dr Christison informs us, that “whatever be the texture of the body to which it is applied, provided death do not ensue quickly, it almost always produces symptoms of inflammation in the stomach, and on inspection after death traces of inflammation are found in that organ.” But there is another way, besides absorption into the blood, in which a poisonous substance may affect parts with which it has never come into direct contact, viz. by extension of the inflammation through continuity of surface; and it is in this way, I think, rather than in the former, that we are to account for the fatal bronchitis in this instance. I argue thus, in the first place, from the comparatively rare occurrence of bronchitis, especially fatal bronchitis, in connexion with arsenical poisoning; and, secondly, from the actual probabilities which there were in the present case, of the inflammation having extended in this manner; for it will be recollected, that a few hours before accelerated breathing and mucous rales were first noticed, and at a time when, in all other respects, the aspect of the case seemed favourable, there was found to be slight pain on pressure over the larynx and trachea; and on dissection the mucous membrane of these parts was found intensely congested, and of a deep brownish-red colour, continuously with that of the bronchi. We conclude hence, that the inflammation passed downwards from the larynx to the bronchi; and how it was excited in the larynx is not difficult to explain, when we consider further the continuity of its mucous membrane and that of the pharynx, with which latter particles of the poison must have been brought into contact more than once, in the act first of swallowing the substance, and subsequently of vomiting.

Case 2. Pneumonia—Poisoning (?) by a Cough Mixture, containing two drachms of the solution of muriate of morphia.

M. H., æt. 19, was brought into the Infirmary, December 23d, 1845, at nine A.M., in a state of complete insensibility. She was stated to have had a fall on the right side two days previously. This was followed by stitch in the side and difficult breathing, together with cough and bloody expectoration. For these complaints a young medical man had seen her the previous evening, and prescribed, on a dispensary paper which was brought for our inspection, an eight ounce pectoral mixture, with half an ounce of sp. æth. nitric., and two drachms of solution of muriate of morphia. She commenced taking this mixture at eight P.M., and being anxious to obtain relief to her cough, had taken the whole of it by two A.M. She then fell into a state of insensibility, which had continued up to the time of her admission into the hospital.

At the time of admission this previous history was not known, nor what was the substance taken; the only information we had was, that the medical man who had seen her after she became insensible, pronounced her to be labouring under the effects of poison, and ordered her immediate removal to the hospital. When brought in she was perfectly insensible; breathing somewhat hurried and oppressed; pulse almost imperceptible, and so rapid that it could not be counted; the pupils contracted to the size of a pin's head.

The stomach-pump was immediately applied, but brought nothing off the stomach; warm water was then injected, and the patient expired almost immediately after, and before any farther measures for her relief could be employed.

Sectio Cadaveris.—Dec. 24.—Face, neck, and arms of a livid purple hue; fingers rigid.

In Head nothing morbid was found, unless a somewhat less marked appearance of the sulci between the convolutions of the brain, and that the vessels contained dark coloured blood.

Chest.—Left pleura healthy. A thin layer of soft recently effused lymph over the pleura covering the inferior lobe of right lung. Left lung had its substance engorged throughout, but crepitant. Right lung heavy, condensed, and did not collapse on opening the chest. On slicing, it was found hepatized throughout, except at its anterior margin, where it crepitated. The upper portion of the lung was of a brown mahogany colour, granular, and sinking readily in water. The central portion was much paler than the rest, and had, to a certain degree, the appearance of the grey hepatization. The heart was large; its left ventricle hypertrophied; its valves normal.

Abdomen.—The stomach contained about a pint of greyish-coloured fluid. Its mucous membrane was much corrugated, but perfectly healthy. There was a contraction in the middle of the organ, giving to it an hour-glass form. The ovaries were enlarged. The os uteri filled with a clot of blood. The whole interior of the uterus was lined by a thin membrane of a light red colour; the mucous membrane of the vagina was normal. The other viscera healthy.

Blood.—The aorta contained a colourless clot of blood. The right auricle and ventricle of the heart were distended by clots, which were colourless in some parts. A small colourless clot was entangled in the chordæ tendineæ of the mitral valve.

Whatever interest attaches to this case obviously depends, not on the pneumonia passing into the third stage, of which such distinct proofs were found in the right lung, but on the alleged poisoning from taking a cough mixture which contained two drachms of the solution of morphia. Now it must be acknowledged at the outset of these observations, that we are not in a position to pronounce with the certainty that could be desired as to what was the cause of death in the present case. Pneumonia, affecting the greater por-

tion of one lung, had been going on for two days. It had been acute and rapid in its course, and had already begun to pass into its third stage, without any effort being made to check it, or, as it would seem, any medical aid being called in until within a few hours of this patient's death. In the appearances found within the thorax, we had what amply sufficed to account for the fatal termination, and it is probable that, but for the allegation of poisoning, no one would ever have thought of inquiring further into the cause of death. This allegation, however, made on the authority of the medical man who ordered her removal to the hospital, and the history of the case from eight o'clock the previous evening, as subsequently ascertained, give to it another aspect, and naturally led to an inquiry which it will be most convenient to divide into two heads, viz. What evidence have we here of narcotic poisoning? and, supposing that established, What are the circumstances which render this case peculiarly worthy of our attention, as compared with ordinary examples of poisoning by opium or its preparations?

That this patient was brought into the house suffering from the effects of an over-dose of morphia, and that she actually died of the poison (however probable it may be that she would have died very shortly of the disease with which she was previously affected), appears to me susceptible of proof, from the various particulars of the history, symptoms, and post-mortem appearances which have been detailed. When seen the previous evening, she exhibited no symptoms, as far as can be ascertained on careful inquiry, but those connected with the pneumonia, such as anxious breathing, and a troublesome cough, with pain in her side. She then took, in the shape of a cough mixture, what must certainly be considered as an excessive dose of morphia, inasmuch as, through over anxiety to obtain relief, she had swallowed, in the course of six hours, a prescription which was doubtless intended to serve for four times that period. And immediately upon this, she is described as having fallen into a state of insensibility, which continued up to the time of her admission and death. The occurrence of the insensibility was thus evidently connected, in point of time, and to all appearance also in the way of cause and effect, with the taking of an over-dose of morphia. If next we look to the symptoms exhibited on admission, we find among the most prominent, complete insensibility and contraction of the pupils to the size of a pin's head—two of the symptoms which are most commonly observed after poisoning by opium. It is true that in such cases the breathing is almost always slow, and the pulse often slower than natural, whereas here the pulse was rapid on admission (at the same time almost imperceptible), and the breathing hurried and oppressed. But then we must take into account that this patient did not come under our observation till just at the closing scene; and further, that it was not a pure case of narcotic poisoning, but one occurring in the course of

pneumonia,—a disease whose ordinary effect it is to accelerate the pulse and cause the breathing to become hurried and oppressed. For the same reason, and also because opium is well known to act through absorption into the blood, and to produce symptoms of disorder of the nervous system principally, we must not expect much light to be thrown upon the nature of this case by the morbid appearances. Opium, in fact, produces none of a distinct and unequivocal character. The principal are stated to be—turgescence of the vessels of the brain, and sometimes effusion into its ventricles or on its surface,—the lungs sometimes engorged with blood,—the stomach sometimes, but rarely, red,—commonly a livid state of the skin, and a fluid condition of the blood. Of these appearances, such as they are, we had two of the most common in the case before us, there being slight congestion of the vessels within the head, and purple lividity of the face, neck, and arms. The blood, certainly, was not generally fluid (an appearance on which some have placed considerable reliance); on the contrary, there were in the heart and great vessels a number of coagula, some of them colourless. But this might again be accounted for by the fact, that the patient was at the same time labouring under an acute inflammatory disease,—a disease in which, above all others, the quantity of fibrine and tendency to coagulation in the blood are increased; and besides, the state of the blood is found to be very various even in unequivocal cases of narcotic poisoning, so much so, that Orfila states that it is *often* found coagulated shortly after death; and, therefore, the absence of unusual fluidity is no proof that death had not been thus produced.

It appears, then, that after the taking of an over-dose of morphia, there supervened, in this case, many of the symptoms of narcotic poisoning, and that, on a post-mortem examination, there were found certain of those appearances which (however unsatisfactory they may be considered) it is usual to observe in poisoning with opium or its preparations. And it appears further, that where the symptoms or post-mortem appearances may have seemed to be inconsistent with that idea, the circumstance can be readily explained by adverting to ordinary effects of the disease under which the patient was labouring previously to the poison being taken. So that, upon the whole, the evidences in favour of narcotic poisoning are, I venture to think, extremely strong.

And now, on the supposition that this was a case of poisoning by a preparation of opium, I may advert to two or three points in which it differs from other cases of the same kind, and which appear to me not unworthy of special notice. It is interesting, in the first place, on account of the preparation of opium taken; for fatal cases of poisoning by morphia have hitherto been rare. The present case, however, will not add any thing to our knowledge of the peculiar effects of this preparation in poisonous doses (if it have any as distinguished from those of opium), seeing that it did not

come under our observation till the patient was at the point of death, and that it was, moreover, not free from complication. We may pass on, therefore, to a second particular, whereby this case was distinguished, viz. the smallness of the dose which appears to have produced death. The patient was stated to have taken nothing but the mixture prescribed on the dispensary paper which was shown to us. There was no reason to believe that she had intentionally taken more; and the prescription was written in a distinct legible manner, and was just such a cough mixture as they are in the daily habit of making up at the dispensaries; so that no mistake is likely to have occurred in compounding it. It contained in all two drachms of the solution of muriate of morphia, or little more than one grain of that salt, which, according to Dr Christison's observations, is fully equal in power to six grains of the best Turkey opium; and, moreover, it was taken in divided doses, spread over the space of six hours. But ten grains is the smallest fatal dose of muriate of morphia which we find recorded by the same high authority; though he allows that less would undoubtedly suffice. Thus it will be seen that this case is remarkable on account of the quantity of the muriate which proved fatal, it being the smallest dose of that substance yet known to have caused death. And it will be found not less remarkable, if we refer to the recorded cases of poisoning by opium, bearing in mind, at the same time, the proportional strength of the two substances, as stated above. From these it appears, that while there are great variations, according to the susceptibility of individuals and other circumstances, it generally takes twenty grains of opium (equivalent to more than thrice the quantity here taken) to cause death. One case, however, of poisoning by opium is recorded by Dr Christison, which, in respect of the fatal dose and other circumstances, bears so great a resemblance to the case before us, that we may perhaps be allowed to mention its particulars in this place. Like our patient, it was on account of a cough that this person took $4\frac{1}{2}$ grains of opium, along with 9 grains of camphor. He took it at seven A.M., and at nine was in a deep sleep, from which he could not be roused. Medical assistance was not sent for till three P.M., when the usual symptoms of narcotic poisoning were present, and death ensued in an hour after this, notwithstanding the active employment of remedies; being nine hours altogether since the taking of the fatal dose. Now, if the calculation given above of the relative strength of opium and morphia be correct, it follows that the dose taken by our patient was equal to at least $1\frac{1}{2}$ grain more of opium than proved fatal here. Death from so small a dose, therefore, however unusual, must not be regarded as wholly unexampled. Still it is very remarkable, when we consider that the dose, in our case, was not taken all at once, but divided.

In conclusion, there is yet another particular of interest connected with the present case, to which it will be right to advert. Could

the inflammation within the chest have added at all to the intensity of the effects of the morphia? It is not very easy to see why it should be so, and yet there exists a certain amount of evidence to render the supposition probable. Dr Christison has adduced several cases to prove that in some diseases, and especially inflammatory affections of the chest, medicinal doses of opium have been known to act with unusual energy, and to have caused death. The present observations have extended to too great a length to permit of our pursuing this part of the subject further, unless, indeed, we could have done so with some prospect of coming to a satisfactory result. In the present state of our knowledge, it will be sufficient simply to refer to these recorded cases; and to point out a similar coincidence between inflammation of the lung and poisoning by an unusually small quantity of morphia prescribed for its relief, as having occurred in the case of which an account has now been given.

Part Second.

REVIEWS.

Traité de Nosographie Médicale. Par J. BOUILLAUD. Paris, 1846.
5 vols. 8vo.

IN the work before us the author professes to give a view of the present state of medical science. In the preface he briefly alludes to the labours of Morgagni, Bichat, Pinel, and Broussais, whom he esteems as the great ornaments of the organic or physiological school of medicine. Since the publication of Broussais' *Examen des Doctrines Médicales* in 1816, we are told, that medical science has been advancing steadily in the right direction, acquiring every day additional precision and certainty, and that during the last twenty years it has made advances hitherto unprecedented over all the branches of its vast empire. "The philosophy of medicine," says M. Bouillaud, "has been reduced to a formula (*formulée*)."
"The old methods of observation and exploration have been perfected, while new ones have been invented. By the united light of these methods, and especially by the vivid illumination furnished by the methods properly termed exact (physics and chemistry), modern medicine has been enabled to discover a considerable number of diseases, some general, some local, some of solids, some of fluids, and to ascertain accurately the history of most diseases which were formerly known. The art of healing diseases has improved no less happily than the art of detecting them." (Page xiv.)

Our nosographist predicts the advent of the golden age of medicine, when the same unity which reigns in the most exact of the natural sciences shall be extended to the doctrines of the healing art; when there shall be a code of medicine as there is of jurisprudence. Until this glorious period shall have arrived, it is desirable, that all which is positively ascertained in our science should from time to time be collected and arranged in a systematic form. To separate all that is demonstrably true from what is merely conjectural in medicine is, in our opinion, the chief object which the nosographist should keep in view. It is obvious that M. Bouillaud does not possess all the qualifications necessary for the successful execution of the task which he has undertaken. He has no doubt enjoyed a vast amount of experience as a physician in the Parisian hospitals, and in proof of his industry refers to thousands of cases arranged expressly for statistical purposes; he has distinguished himself by his writings, particularly by his treatise on the Diseases of the Heart; he is familiar with all the doctrines of the French school. Yet we find that his zeal for originality has often led him into error; that the most important of his statistical observations are inaccurate; that he knows little or nothing of the medical literature of this country or of Germany. He has included too much controversy in several parts of the work before us, and shows a most unphilosophical irritability when he has occasion to defend certain dogmata, particularly when his assailant is M. Louis.

We are convinced that few will be disposed to admire the nosological classification which M. Bouillaud has adopted. It consists of twelve great *classes* of very unequal dimensions, and great ingenuity has been misapplied in splitting each into orders and sub-orders. A single example will sufficiently illustrate the boldness and intricacy of the artificial system thus developed. *Amenorrhœa* is classified along with *asphyxia* and *inanition* in the second sub-order of the second class. The sub-order is thus defined. II. "Diminution or cessation of special organic actions from deficiency of forces purely physical, or from privation of certain external agents." The sub-order is a member of Order II. "Complete abolition, or simple diminution of forces which preside over the special actions of different organs." The order belongs to the Second Class, which embraces, "Diseases consisting in deficiency of excitation or of vital action." Our author has in his zeal for localizing disease assumed as proved much that is at least doubtful, and has referred certain affections in a most arbitrary manner to his different classes. Thus, *inflammatory fever* is set down at the very head of the system as an inflammation of the lining membrane of the heart and great blood-vessels, under the novel title of "angio-cardite;" *intermittent fever* is styled an "active neurosis of the ganglionic nervous system;" *entéro-mésentérile* occupies the place which Broussais would have assigned to it, while typhus is banished to the Fourth Class, there to associate with *yellow fever* and *plague*.

The following synoptical table exhibits the great divisions of the system proposed by M. Bouillaud.

CLASS I.

Fevers and Inflammations, or Pyrexiaë.

CLASS II.

Affections consisting in a deficiency of excitation, or of vital action.

Appendix to the Two First Classes.
Excess and deficiency of Hæmatosis.

CLASS III.

Ataxiaë of the nervous centres.

CLASS IV.

Miasmatic and virulent diseases.

CLASS V.

Perverted nutrition, perverted secretion, and development of Entozoa, (of non-inflammatory origin).

CLASS VI.

Effusions in general, and in particular Hemorrhagies.

CLASS VII.

Solutions of continuity and anormal communications.

CLASS VIII.

Changes of position and of direction, or displacements and deviations.

CLASS IX.

Anormal adhesions, connexions, and insertions.

CLASS X.

Changes in extent, volume, and capacity.

CLASS XI.

Foreign bodies and retenta.

CLASS XII.

Changes relative to the configuration, number, or very existence of organs, or of their constituent parts.

By far the largest share of diseases is of course monopolized by the first class. We shall not pause to inquire into the expediency of arranging fevers, inflammations, and irritations under the same head, nor shall we inflict upon our readers further criticism upon the dry subject of nosological arrangement; but shall rather endeavour to illustrate the author's peculiar opinions regarding the nature and treatment of certain important diseases.

Angio-Cardite, or Inflammatory Fever.

The following are represented as the true anatomical characters of this disease:—"Redness of the membrane which lines the

cavities of the heart and great blood-vessels; thickening and ramolissement of the inflamed membrane; secretion of coagulable lymph from the inner surface of the vessels; increased proportion of fibrine in the blood; decolorized clots, more or less adherent to the inner surface of the heart and arteries" (p. 336). We see no reason to believe that these are the essential morbid appearances of inflammatory fever, although we cheerfully concede, that cases in which they are all present may, with great propriety, be termed "angio-cardite." Patients rarely die of pure inflammatory fever, and M. Bouillaud's experience seems to have been totally derived from cases in which it has either been symptomatic of inflammation of some important organ, such as the lung or heart, or complicated with a "*typhoid element*." He believes that the increased proportion of fibrine in the blood is due to a secretion of coagulable lymph poured into the circulation by the inflamed lining membrane of the heart and arteries; but tells us that in *typhoid* angio-carditis the fibrine is diminished in quantity. He admits that the redness of the membrane is a fallacious appearance which may be due to cadaveric imbibition,—that the thickening, softening, &c., are only found when the malady has been very acute and prolonged, and are seldom well marked when the fever has been secondary or symptomatic of some visceral inflammation. We are likewise informed (p. 338), "that if in cases of *general* inflammation of the sanguiferous system we do not observe great alterations in the blood, it is because the inflammation, when disseminated or scattered over so extensive a surface, loses in intensity what it gains in extent. But when the inflammation is concentrated in the heart or in certain arterial or venous trunks, and there attains a high degree of intensity, it constantly causes the coagulation of the blood contained in the inflamed part." Instead of following our author, in concluding that angio-cardite and inflammatory fever are identical, we believe that the evidence which he has adduced in support of his doctrine only proves what no one will seek to controvert, viz. that in inflammation of the heart and arteries, *local* symptoms are sometimes wanting during life, while the symptomatic fever is of the inflammatory type.

Under the different heads relating to inflammation of the sanguiferous apparatus and to arthritis, we find the results of a long experience devoted to the investigation of these diseases. Their anatomical characters are treated of with great minuteness; and if the chemical and microscopic peculiarities of different morbid products are not always alluded to, we can excuse their omission by an observer, who, although well aware of their importance, has had his attention more particularly directed to other subjects.

While discussing the pathology of phlebitis, our author remarks, that the redness of the integuments which is observed when inflammation visits the superficial veins of a limb, is a powerful argument in favour of M. Ribes' doctrine, that erysipelas is nothing but *ramuscular phlebitis*.

The peculiarities of the symptomatic fever in phlebitis he believes to depend upon the presence of pus in the circulation. "So long as the degree of the venous inflammation does not pass the *adhesive*, the fever exhibits the purely inflammatory character, unless there exists at the same time some source of *septicity*. But when the phlebitis assumes what is properly termed the suppurative form, that grave assemblage of phenomena which constitutes the typhoid state is quickly observed to succeed; and, at a period when this inflammation was not understood, cases in which this peculiar form of phlebitis existed were regarded as cases of typhoid, putrid, or adynamic, and *essential* fever. Even in our own day, it is not rare to see certain physicians commit a similar error."—(Vol. I. p. 448.) He holds with Cruveilhier that pus cannot be absorbed by veins, and that when present there it must have been produced by suppurative inflammation of the vessels. We find that he denies the contagious properties of uterine phlebitis, even as it has been observed in the lying-in hospitals of Paris,—an incredulity in which, we presume, few practitioners who have seen much of the disease will participate.

Considerable space is devoted to the enumeration of the physical signs which indicate different lesions of the heart and its valves. In cases of considerable pericardial effusion, M. Bouillaud has repeatedly observed the peculiar vaulting or prominence of the cardiac region, to which the attention of the profession was first called by M. Louis. In six or seven cases of general adhesion between the pericardium and heart, he has been enabled to make a correct diagnosis, by observing, *1stly*, an evident depression in the cardiac region, analogous to that which one side of the chest often exhibits when contracted after the absorption of a pleuritic effusion;—*2dly*, a species of embarrassment in the movements of the heart, whose apex, in such cases, does not impinge upon the wall of the chest with a free punctuate stroke. Among the signs of valvular insufficiency we do not find the *want of synchronism between the cardiac and radial pulsations*,—a sign whose value has been well tested since its discovery by Dr Henderson, and with which our continental brethren ought, ere this time, to have become familiar.

The frequent occurrence of Endocarditis and Pericarditis, in connexion with articular rheumatism, is a subject to which our author has devoted much attention. His observations have led him to conclude, *1st*, "that in acute, violent, general rheumatic arthritis, the complication of the disease with endocarditis, pericarditis, or endo-pericarditis, is the *rule*, the *law*,—and the non-complication the *exception*; *2dly*, that in cases of acute, but at the same time, slight, partial, and apyretic articular rheumatism, the non-complication is the *rule*, and the complication the *exception*; *3dly*, that rheumatismal endocarditis is much more common than rheumatismal pericarditis; and that although *endocarditis* often

exists alone, pericarditis (especially when intense) is rarely observed without inflammation of the endocardium."—(P. 487, vol. i.)

Although physicians whose opinions deserve great respect have not observed the cardiac complications to be more frequently connected with severe than with slighter attacks of rheumatism, we feel great confidence in the accuracy of M. Bouillaud's statements on this head. For the purpose of accurately investigating the point, he classified 114 cases of acute rheumatism, according to their degrees of intensity. In 64 out of 74 cases of extreme or medium severity, he found unequivocal evidence of endocarditis, or of endopericarditis. The remaining 40 cases, which were of a milder nature, included only one with cardiac complication. We agree with our author in reprobating the doctrine of metastasis, as unsupported by sound evidence, and apt to deter the practitioner from the use of active remedies. Although the articular pains and cardiac complications do undoubtedly succeed each other in many cases, does the simple fact of such succession prove that the new disease is caused by the repulsion or retrocession of the old one? Do we not quite as frequently observe both going on together; and is it not probable that many cases of reputed metastasis of rheumatic inflammation to the heart may have been instances in which a cardiac complication has escaped detection during a period of acute articular pain? At p. 181 of vol. ii. we again find that our author censures the application of the term "*metastatic*" to those affections of internal organs which sometimes succeed the disappearance of erysipelas.

Among the inflammations of the respiratory organs we were prepared to find some reforms, but hardly so radical as those developed under the head of Laryngitis. The nomenclature was no doubt objectionable, which embraced such terms as *angina stridulosa*, *œdema glottidis*, *croup*, *diphtherite*, &c.; but M. Bouillaud's zeal for simplification reduces all inflammations of the larynx to three forms, viz., the *catarrhal* (which includes the *ulcerative*), the *pseudo-membranous*, and the *pustular*. Anatomically speaking, these divisions may be accurate, but, as an index to the species of disease, they are insufficient. Our author seems always unwilling to admit the existence of an occult specific cause. Thus, we find that he argues against M. Bretonneau's views regarding the contagion or specific origin of croupal or diphtheritic inflammation, and remarks, that certain states of the system are manifestly favourable to the production of fibrinous or pseudo-membranous secretion, probably by reason of modifications which the blood, that great source of all secretion, has undergone. Hence he infers, that the peculiar condition of the blood in infants renders them more liable to croup than adults.

Like other faithful disciples of Broussais, M. Bouillaud believes that the deposition of tubercle in the lungs is the effect of an inflammation of their lymphatic ganglions. The chief evidence

which tends to support this opinion, is the frequent development of tubercles in the bronchial glands, and the analogous appearances observed in other parts of the lymphatic system in cases of tubercular cachexia. Still we consider the doctrine to be as yet a mere hypothesis, and until its truth shall have been clearly demonstrated, object to the term *ganglionitis pulmonalis*, believing that the old term *tuberculosis* is, in the present state of our knowledge, infinitely to be preferred. There is probably no branch of morbid anatomy in which the chemist and microscopist can more profitably labour, than in fixing the true and unequivocal characters of tubercle—these must be ascertained before we can hope to penetrate the mysterious subject of its deposition.

Entéro-mésentérite is the last of the inflammations on which we purpose to make a few observations. M. Bouillaud would be no true Frenchman if he did not believe that most cases of typhoid fever depend upon inflammation of the small intestines and mesenteric glands. The ulceration of the glands of Peyer and Brunner, although very rarely observed in Edinburgh, is, in the continued fevers of Paris, and of the continent generally, almost uniformly met with. Hence Prost, Broussais, and other pathologists who have laboured to localize disease—to detect the suffering organ—assure us, that the primary lesion in fever is gastro-entérite, that in short the fever is never *essential*, but always symptomatic of local inflammation. We shall not pause to inquire if this doctrine is applicable to the forms of continued fever so frequent among the population of this country; suffice it to say, the doctrines of Broussais have not as yet found much favour in the eyes of British pathologists. The opinion of our author regarding the production of typhoid phenomena in the fevers of Paris is, that when inflammation attacks the glands of Peyer and Brunner, and proceeds to ulceration, a certain number of absorbent or resorbent surfaces are formed,—that the lower end of the ileum serves as a receptacle for fetid and highly putrescible matters, and constitutes a species of “*latrine vivante*,”—that the contamination of the blood by the putrid matters absorbed from the ileum is the real cause of the typhoid phenomena. In confirmation of these views he states (vol. iii. p. 131), that, during the last thirty years, he has never met with a case of ulceration of Peyer’s patches uncomplicated with typhoid fever. He believes that by attacking the disease in its early stage by a bold antiphlogistic treatment, we have it in our power to cut it short, and so prevent the stage of ulceration with its typhoid accompaniments. Were it strictly true that the absorption of putrid matter from the ileum is the cause of the adynamic symptoms, we should naturally expect that ulceration of other parts of the alimentary canal, particularly of the colon, would give rise to similar disturbance of the system; yet this, it is hardly necessary to say, is not the case. Neither has the experience of good observers shown the existence of any direct ratio between the

amount of the ulceration in the ileum and the urgency of the typhoid symptoms. "In cases in which the symptoms have been of the worst kind," says Dr Williams, "there have been found very few ulcerations, and those small and apparently insignificant. On the other hand, when the complaint has run a moderate course, but at length has terminated fatally, it is not uncommon to discover a frightful amount of disorganization in the ileum."—(Lectures, vol. ii. p. 688.)

In no parts of M. Bouillaud's work does he claim more credit for himself, or make larger drafts upon the credulity of his readers, than in the innumerable passages which treat of the cure of inflammation. If but a tithe of his statements regarding his success in the treatment of acute disease was deserving of implicit confidence, a revolution in the tables of mortality would be at once effected, such as would entitle him to the gratitude of the present and all future generations. We are told (at p. 46 of vol. i.), that inflammations and their consequences constitute two-thirds of the diseases of the human race, and cause the death of the greater share of mankind. We are however assured that by the general adoption of an enlightened mode of treatment, the mortality from these diseases may be reduced almost to zero. There is henceforth but one heroic remedy capable of extinguishing inflammation in all its forms—a remedy long known, but little understood—the de-traction of blood. But the indiscreet phlebotomist must not consider himself prepared to encounter inflammation, till he has taken his lesson from our author, and been initiated into the mysteries of the "*nouvelle formule des émissions sanguines suffisantes*." The details of this formula are sufficiently well known to the profession: the "*coup sur coup*" system of blood-letting has been recommended and practised for many years past by M. Bouillaud, and marvellous indeed are the results which, in *his* hands, it has attained. "Under the influence of this formula cures are so uniformly obtained, that those persons who are in the habit of frequenting our "Clinique" consider the death of an individual of average strength and constitution as *almost impossible*, provided he has entered our wards to be treated for an acute inflammation, and his disease does not seriously involve the nervous centres."—(Vol. i. p. 138.) We find mention made (at p. 496 of vol. ii.) of 400 cases of pneumonia cured almost without exception. No one who considers for a moment the nature of the pneumonic cases which are usually treated in hospitals, can believe the above statement. How many are almost moribund when brought under the care of the physician! How rarely do we find the disease uncomplicated—if not with other active inflammation, at least with chronic disease of some other important viscus, such as the heart or kidneys! With what chance of success could the "*nouvelle formule*" be applied to the case of a drunkard, already perhaps verging upon the state of delirium tremens. We feel satisfied, that the 400 cases of pneumonia do not include *all* that

our author has treated during the last twelve years, and that no account is given of the *fatal* cases in which the disease was complicated, or of those to which active treatment could not be applied. We could likewise show, if space permitted, that there is gross error in the analysis of 827 cases of pleuro-pneumonia entéro-mésentérique, &c., given at p. 153 of vol. i., in which a mortality of 1 in 12 is ingeniously reduced to 1 in 45 or 46. Although we cheerfully agree with M. Bouillaud, that by means of free blood-letting we often have it in our power to abridge or jugulate inflammation, we are not prepared to follow him in applying this doctrine to the treatment of continued fever. That the detraction of four or five pounds of blood upon an average is an almost infallible remedy for inflammation, and that venesection is even expedient in the treatment of continued fever, *amygdalitis*, &c., we shall continue to doubt. The practice of blood-letting has of late years fallen considerably into disrepute, whether in consequence of the doctrines held by M. Andral and M. Louis, of its indiscriminate commendation by M. Bouillaud, of some freak of fashion, or other less obvious cause, we shall not at present attempt to pronounce. Certain it is, our author's practice has found but few imitators.

Perhaps no part of the new classification is more ingenious than that which includes irritations or active neuroses. "The *essential* symptoms of irritations of the nerves and nervous centres consist in a more or less marked exaltation of the acts and functions over which they preside; and as these acts, these functions may be said to be infinitely various, so likewise are the symptoms. Sometimes there is quick, severe, intolerable pain; sometimes spasm or convulsion; sometimes a superabundant flow of some fluid secretion. But these phenomena are only proper to the irritation of *some* of the nervous cords. Suppose a general irritation of the nervous centres and cords of the encephalic or cerebro-spinal system; there will then result those disorders of the functions of animal life, known under the names of delirium, mania, epilepsy, hysteria, &c. If the irritation pervades the centres and nervous cords of the ganglionic system, or system of organic life, we observe the development of those different perturbations of internal functions, which constitute the different species of *intermittent and remittent fevers*;—perturbations which bear the same relation to the functions of organic life, which delirium, mania, idiocy bear to those of animal life,—perturbations which constitute a kind of delirium or mania of the ganglionic system."—Vol. iii. p. 415.

Having conceived that ague consists in an irritation of the nerves which preside over the phenomena of circulation and calorification throughout the body, M. Bouillaud was induced to attempt its cure by means of digitalis. Knowing the power of this drug in diminishing nervous action and in retarding the movements of the heart, he experimented successfully in between thirty and forty cases of ague, administering from four to five grains by the mouth, and ap-

plying an equal quantity to the surface of a blister over the spleen. Quina in large doses lowers the pulse, and our author hence infers (with what probability chemists and botanists may determine), that there exists some similarity in chemical composition between quina and the unknown active principle of foxglove. In accounting for the phenomena of "pernicious agues," M. Bouillaud suggests that the blood may be contaminated, poisoned by vegetable or "paludeen" miasmata. We cannot avoid remarking that he has established a separate class for miasmatic diseases, to which intermittent fever might have been with great propriety transferred.

We find that all diseases of the nervous system, excluding of course the inflammatory, are referred to four different heads: 1, Augmentation; 2, Diminution; 3, Perversion, or depravation; 4, Disorder, derangement, or "*ataxie*" of functions. For these heads our author has created the terms Hyperneuries, Hyponeuries, Heteroneuries, and Ataxoneuries (vol. v. 321). One class might surely have been contrived to embrace all these divisions. As it is, a most inextricable confusion prevails among them. We have the various nervous affections scattered over half a dozen classes, and the definitions upon which these classes have been constructed are so imperfect, that we cannot *a priori* imagine what each includes. There is an absurd affectation of accuracy too exhibited in the division and subdivision of the classes. Of what use is such a paragraph as the following, which we find among the passive neuroses of the cranial nerves?

"II.—PARALYSIS OF THE GLOSSO-PHARYNGEAL NERVE.
Unknown!"

Yet so numerous are paragraphs of this sort, so extreme is the author's anxiety to omit nothing, that the table of contents at the end of the work is actually swelled to *fifty-eight* pages.

M. Bouillaud acknowledges the accuracy of certain fundamental doctrines of phrenology. He believes that different faculties have different seats in the brain, but denies that Gall and his disciples have hitherto succeeded in mapping them out. In the anterior lobes of the brain he is inclined to localize certain intellectual faculties, and in particular the power of remembering words. But there is a peculiar function which he endeavours to prove that these lobes discharge, viz. "that of associating and controlling the muscular movements necessary for articulate speech." To the cerebellum he attributes the power of regulating or "*co-ordinating*" the muscular acts of station and progression. These views are founded partly upon the author's experiments upon animals, and partly upon what he has observed in a few cases of disease of the brain. It is but fair to say, that he expresses himself with diffidence regarding their correctness, which more extensive observation can alone demonstrate. He remarks, that an individual may almost totally lose the power of articulation, station, and progression, while

yet there may be no true muscular paralysis,—the fault may lie in the regulation or association of the necessary muscular acts. Instances of this are not unfrequent in that melancholy disease, the “*paralyse générale des aliénés*,” which our author upon theoretical grounds includes among the *ataxoneuries*. We believe that the evidence furnished by dissections is more favourable to the views of M. Calmeil, who attributes this singular disease to chronic encephalitis chiefly affecting the cortical substance of the brain.

We are told that gangrene, in its characteristic phenomena, is diametrically opposed to inflammation; that both processes have their seats in the capillary circulation; that both consist in a “*lesion*” of the blood, and of the forces with which the nerves of organic life are endowed; that the lesion in gangrene is the inverse of the lesion in inflammation. There are certain cases of *white ramollissement* of the brain pretty frequently met with in aged subjects, which our author proposes to style “*senile cerebral gangrene*.” He argues, “that such ramollissements generally coincide with a cretaceous or ossified state of the cerebral arteries, a circumstance eminently favourable to the interruption of the flow of blood through the branches of these vessels, and hence to the gangrene of that portion of brain which is fed or vivified by the obstructed branches. It is ramollissement of this kind which is observed without any previous signs of inflammation in the cerebral substance. This substance is, in such cases, found upon dissection to be so soft and diffuent as to resemble the pulp of a rotten pear, and yet no notable injection or purulent infiltration can be detected.” (Vol. iv. p. 390.)

A peculiar form of gangrene which attacks the extremities of dilated bronchi has been described by M. Briquet. Our author suggests that many of those cases in which a patient ultimately recovers, after having expectorated for a time sputa of the characteristic gangrenous fœtor, ought probably to be referred to this category. We do not regard the mere fœtor of the sputa as sufficient evidence of the existence of gangrene in the lung. We have observed several instances of the apparent cures to which M. Bouillaud alludes, and *one* at least in which unequivocal symptoms of gangrene had been present; we are however inclined to think that although it is hardly possible to overlook the presence of gangrene, yet its existence is sometimes assumed upon unsatisfactory evidence. We have never seen an example of the disease described by Briquet, and are convinced that it must be an exceedingly rare one.

Our author restricts the term “*plethora*” to those cases in which the quantity or volume of the blood is excessive. He admits the accuracy of M. Andral’s discovery, that in plethoric subjects the blood is unusually rich in globules, but argues, and we think correctly, that this extraordinary proportion of globules may exist independently of a state of plethora.

His observations upon Anæmia, Hydræmia, and Chlorosis are full of interest. He denies that identity in appearance, which Andral has alleged may exist between blood drawn from the arm in chlorosis and in inflammation. We must here declare ourselves entirely of M. Andral's opinion. It is certain that in chlorosis the proportion of blood globules is diminished, while the fibrine remains unaltered; that in inflammation the blood globules remain unaltered, while the proportion of fibrine is increased. In both classes of disease, then, there may exist a similar ratio between the globules and fibrine, and hence the buffy appearance undoubtedly often exhibited by the clot. Our author has made a number of experiments with Baumé's areometer upon the blood of anemic and chlorotic patients. He found that whenever the density of the blood was reduced to 6°, the "bruit de diable" was audible. He quite agrees with Andral in regarding this "bruit" as pathognomonic of an impoverished state of the blood. He reprobates the opinions of those who look upon chlorosis as a symptom of uterine derangement; he attributes its frequent occurrence in young females to the *use of tight stays*, "which by their pressure obviously impede the absorption of chyle, and embarrass the circulation and respiration, finally producing a species of atrophy of all the viscera on which they exercise a continual pressure—viscera, whose free and unimpeded action is one of the necessary conditions for a healthy and complete hæmatosis." The remedies which he recommends are a generous diet, exercise, wholesome air, the use of chalybeates, and a reform in the "*corsets*."

It is hardly possible to comprise within the ordinary limits of a review, a complete analysis of a work like this. There is scarcely a chapter in it which, if critically examined, would not call for comment. We have therefore contented ourselves with selecting certain important subjects to which our author's attention has been particularly directed, or on which he appears to hold peculiar opinions. The list of these subjects is very far from exhausted; if space permitted, the doctrines of inflammation and irritation, the theories of fever, of dropsies, and of hemorrhagies, the special pathology of almost every organ in the body, would invite discussion.

M. Bouillaud has not, in our opinion, added materially to his reputation by the publication of his "*Traité de Nosographie*." We predict for it a very small share of popularity, even in France. Its very arrangement would be sufficient to prevent its adoption as a text-book in the schools. It is deformed by the most tiresome reiterations of the same statements, and by a most unmerciful amount of controversial writing. The attempt made to reduce such a vast body of materials to a systematic form is undoubtedly most creditable to the industry of the author, but the proofs of laborious *research* are wanting in the compilation. The writer whose works contribute most largely to swell these volumes is M. Rayer, from whom the descriptions of diseases of the skin and

kidney have been borrowed, certainly not without full acknowledgment. The only works consulted have been those of the writers of the French school during the last half century; the modern discoveries in pathological anatomy have been passed over in silence; all that seems ascertained in therapeutics is disregarded. Even in the faithful description of disease we consider the work immeasurably inferior to several in the English language.

W. R.

Remarks on the Dysentery and Hepatitis of India. By E. A. PARKES, M.B., late Assistant-Surgeon, H.M. 84th Regiment. 8vo. pp. 271. London: 1846.

THIS work is a valuable addition to our knowledge of the dysentery and hepatitis of India, and is in consequence to be regarded as a contribution of no small importance towards the advancement of Pathology at large. The author has not indeed, to any great extent, made use of such means as the microscope and chemical analysis, to clear up the obscurities of these two diseases; but he acknowledges unequivocally the paramount necessity for these modes of investigation, and points out the cases to which, with as little delay as possible, these should be applied. His dissections are numerous, and his observations as minute as the naked eye admits of, while he takes pains every where to connect the character of the disease with the nature of the treatment which seems most successful.

Our author's views of the history of dysentery may be summed up in a few propositions.

He sets out with the preliminary statement, that all chronic abdominal diseases are of a composite nature, or that a chronic affection of an abdominal organ never remains simple.

As respects dysentery, he affirms that inflammation and ulceration of certain glandular bodies, peculiar, as he thinks, to the inner coat of the great intestines, are the earliest morbid changes in dysentery. The peculiarity of the inflammation in dysentery, he believes, is the rapid advance of ulceration, and, except in general colonitis, a rare and more curable form, often connected with gastro-enteritis, that true dysenteric symptoms never occur without ulceration being present. Ulceration begins in three ways, namely, in the glands themselves; around the glands; and by effusion of fluid beneath the intermediate mucous membrane, the effused matter being white or yellowish, in points, or raising a piece of membrane of considerable size, and the consecutive ulceration being additional to the usual kind of ulceration. The following are the stages of simple dysentery:—first period, enlargement and commencing ulceration of solitary glands; second period, complete and spreading ulceration; third period, cicatrization; fourth

period, abortive cicatrization, commonly called chronic dysentery, a disease which is resultant of continued subacute inflammation and ulceration, combined with ineffectual efforts to produce the usual cicatrizing process. Cicatrization of the ulcers is often very rapid in dysentery, giving rise to the belief that no ulceration had been present; when the healing process fails, and the case does not prove fatal, it becomes chronic. In many instances, from their excessive severity, or from mismanagement, fibrine is deposited in immense quantity upon and between the coats of the intestine. Chronic dysentery is not merely unhealed ulcers, but the effect of the ulceration—an aberration of the healing process. When the ulcers finally heal, a thickening of the coats remains, with a partial or universal diminution of calibre in the colon and rectum; and stricture of the intestine, from contraction of the effused lymph, is a common consequence of chronic dysentery. The fatality of dysentery in warm climates is chiefly owing to complications; the principal complications being suppurative hepatitis, remittent fever, scurvy, gastro-enteritis, delirium tremens, rheumatism, enlargement of the spleen, and granular disease of the kidneys and liver, with or without dropsy—of the first three of which alone he speaks in detail. Suppurative hepatitis is either primary, that is, antecedent; or secondary, the latter being either declared or latent. No satisfactory explanation has yet been given why dysentery should be produced consecutive to a primary suppurative hepatitis; but there is better reason to think that it is from a defective secretion, than from any irritant quality in the bile. All the explanations hitherto offered of the frequent connexion between dysentery and secondary purulent hepatitis are objectionable, and the true explanation is probably to be sought in some still undiscovered relation between the secretion of the liver and the action of the excretory glandular organs of the colon. The complication of remittent fever with dysentery gives to it more of an asthenic character than it usually exhibits in the European constitution, or brings it nearer to the state in which the uncomplicated form is observed among the Burmese. Though the union of the worst dysentery with the worst scurvy, as occurred with very fatal results at Rangoon, in 1824, and often previously in slave-ships and transports, is not to be expected in common garrison practice in India, yet a scorbutic taint does complicate dysentery as well as other diseases in many stations, rendering the treatment much less easy. This scorbutic taint is often so trifling, that the patients recover without medical aid, but, slight as it is, if dysentery or remittent fever in the mean time occur, a most serious disease is produced. The symptoms of this scorbutic taint are various dyspeptic derangements, rheumatic pains in the calves, hams, or ankles, the occasional eruption of purpuric spots or slight ecchymoses, sometimes burning pain of the feet, occasional bleeding from the gums, which are found to be slightly swollen and of a dark

colour. Scorbutic dysentery generally affects the ileum as well as the great intestines; the lymph thrown out does not circumscribe the ulcers; perforations are common; the intermediate mucous membrane is darkly vascular, often softened, and appears to effuse blood without ulceration; blood is effused from the vessels in the ileum, the fibrine of which, by coagulation, forms circular bands following the course of the vessels, and presenting a very singular appearance on dissection; in other cases, there is enlargement and ulceration both of Peyer's glands and of the solitary glands, and general gastro-enteritis, and in the worst varieties there are ecchymosed patches, and a dark livid colour in the intestines as well as in other structures; the symptoms also are modified; the stools not always very frequent, often no tormina and little pain on pressure; the tenesmus generally very distressing; the stools scanty, composed of a thin, dark, serous fluid, mixed with soft lymph, often alternating with dark or clayey and pale feculent substance, affording a fallacious hope of amendment; and in the worst forms the stools very fetid, composed of dark blood, altered secretions and disorganized fibrine; the slighter forms of this complication are usually curable, though very apt to recur, but the severer cases are very intractable.

The causes of dysentery are local or systemic: examples of the former being acrid ingesta; of the latter, diseased secretion, epidemic agents, and blood changes.

On the pathology of dysentery our author remarks: "To attempt to explain the pathology of dysentery now would be as premature as it would be to explain that of fever; the blood changes being undetermined. All these things must be left to time and energy, the great discoverers; and we then may perhaps be able to modify our treatment of the chronic forms, understanding more fully the great changes in assimilation which take place so rapidly in certain organs, and less prominently throughout the whole system."—P. 135.

The appearance of the evacuations is, according to our author, the best guide in the treatment of common acute dysentery. To subdue inflammation he thinks depletion indispensably necessary in Europeans. "As long as the stools are numerous (the attack being recent and uncomplicated), bloody, sanious, dark and copious, or scanty, lymphic, shreddy, or like meat-washings; or a mixture of blood and slime, with or without partial feculence; or nearly pure blood, florid or dark, mixed with a peculiar red mucus; or feculent, yellow, copious liquid, and stained with blood; and more particularly, when with these symptoms there is pain on pressure, and great tenderness, as is the case in most instances, or heat in the course of the colon, depletion must be actively employed."—Pp. 139, 140.

Our author's practice is, for example in a soldier admitted into hospital on the second or third day of a severe attack, or after a week, if the diarrhoea be trifling, purged from ten to forty times in twelve hours, the stools being a mixture of slime, blood, and dark

feculent mucus, passed with great staining, and attended with tormina, to direct one or two full general bleedings, followed by opium, with or without calomel, to allay tormina, and afterwards by oleaginous purgatives with opium. In from six to ten hours after the general bleeding, if this is not repeated, leeches are put over the cæcum and sigmoid flexure three times in twenty-four hours, till the stools become feculent. Leeching to this extent is persevered in for three or four days, and then the daily number employed is lessened. When there is much tenesmus, leeches to the anus afford great relief. The case in which such an amount of leeching is directed is understood to be a severe one. In anæmiated and debilitated people, and in certain places, much depletion induces an atonic or passive state of ulceration, in which no lymph is thrown out. But in most cases occurring in robust Europeans, the effusion of too much and not of too little lymph is what we have to guard against. Mild purgatives, he says, are useful in the early stage. Opium is necessary for the comfort of the patient, and he is of opinion that from three to five grains of calomel, with the first dose, gives more ease than the opium by itself. In the case occurring in robust Europeans, in which there are slight tormina, no tenderness, and great straining, with only a small quantity of red mucus passed, "a scruple of calomel, as noticed by Twining, seems really to exert a very beneficial effect." In the after treatment, blue pill, opium, and ipecacuan will give relief to the spasms and tenesmus, and aid the antiphlogistic treatment.

Dr Parkes admits the frequent good effects of calomel carried to salivation, but is of opinion that "the utility in dysentery of this very powerful remedy has been rated too highly by some of its supporters." "For my own part," he adds, "I have ceased to use mercury in dysentery in any other way than as an alterative, except in chronic, and long-protracted and recurrent acute cases. I never aim at ptyalism, and can confidently assert that my recoveries have been greater in number and more complete, since I in a great measure abandoned the use of mercury, than when I gave it in large quantities." If, from any cause, depletion cannot be used, then, in common acute dysentery, mercury must be had recourse to, as the next most useful plan of treatment.

The nitric and nitro-muriatic acids are useful in natives, and occasionally in Europeans. He thinks these are more beneficial in colonitis or general inflammation of the mucous membrane, or in the cases in which the evacuations are slimy, fatty, and mucous without much blood. Slight cases are readily cured by one or other of these acids and purgatives. He disapproves of the small dose ipecacuan practice, alternated with large doses of the compound jalap powder, as recommended by Twining. If ipecacuan be used, he thinks it should be in doses from 30 grains to a drachm, and without the compound jalap powder. He conjectures that Twining's

cases were chiefly colonitis, in which the inflammation of the mucous membrane being more general, and the ulceration slow, depletion is of less use, and purgatives, in the early stages, of the greatest possible benefit.

Against tenesmus, injections of opium, ipecacuan, acetate of lead, cold water, suppositories of opium and ipecacuan, are highly useful. Even a drachm of the acetate of lead may be used in injection every four hours with great advantage. The warm bath is also useful against tenesmus, and against distressing irritability of the bladder. When there is much pyrexia, the tartar emetic, in doses of from a quarter to half a grain, is an excellent febrifuge, and has at the same time a beneficial local action. It should be avoided in hepatic abscess consequent on dysentery, as inducing purging. Squill is sometimes beneficial on the same principle as ipecacuan, but should hold quite a secondary place.

The rarer form of dysentery, termed colonitis, is marked by more constant pyrexia, by pain on pressure, generally over the course of the colon, and sometimes by heat in that situation, by the stools being more copious, less bloody (as a general rule), yellow or sandy coloured, frothy or slimy, and greenish, and attended with considerable tormina, and sometimes with great tenesmus. In this form, depletion is necessary, but will not alone cure the disease. Mild purgatives with opium after the inflammation has been diminished, and finally, astringents with opium. In other cases of dysentery, our author regards astringents as improper, with the exception of alum, white vitriol, and the metallic astringents which are useful in some forms of chronic dysentery.

Our author refers to four forms of chronic dysentery,—1. successive ulcerations, followed by effusion of lymph, with immense thickening and diminution of the diameter of the intestine; 2. thickening of the coats without new ulceration; 3. dysentery chronic from the first, with hypertrophied and slightly ulcerated glands; 4. chronic dysentery following colonitis, kept up by pale ulcers having the muscular fibres for their floor with scanty effusion of lymph.

In the two first forms, our author recommends cautious local depletion, a strictly farinaceous and unstimulating diet, and mercury, slowly introduced, so as slightly to affect the gums. He prefers the bichloride, and combines it with preparations of cinchona. Iodine ointment, mixed with mercurial ointment, in frictions over the abdomen; also nitrate of silver internally is beneficial, which, however, he condemns in acute dysentery; also the nitro-muriatic acid: these two last remedies are not to be used till after the mercurial course. The nitro-muriatic acid bath is beneficial in the dry furfuraceous state of the skin, and when large quantities of pale urine are passed with a dry skin or partial sweats. Astringents are improper in our author's two first forms of chronic dysentery. In the third and fourth forms, astringents of a me-

tallic kind, as the sulphates of copper, iron, and zinc, are highly serviceable. Tonics and various alteratives, among others iodine, are beneficial. In adynamic forms of chronic dysentery, alum, combined with catechu and camphor, alternated with small and often repeated doses of Dover's powder. Injections of alum are very useful in that form, in which, when fatal, the intestine is found to tear like wet paper. The nitric acid is more useful in natives than in Europeans, particularly in slight dysentery, when the stools are slimy and mucous.

The diet should be chiefly farinaceous, the meals frequently repeated, and the quantity taken at each meal very small. In acute dysentery there should be abstinence from solids, but diluents may be freely indulged in.

On looking back to the sketch just given of our author's views on the history and treatment of dysentery, we find it impossible to take up at present more than one or two of the most interesting points. We cannot but feel, that the distinction drawn between the commonest form of simple tropical dysentery and colonitis is deserving of the greatest attention. When the term colonitis first reached Europe, it was understood to signify the most acute form of dysentery, such as usually attacks the unacclimated who have recently arrived in India, and was represented as opposed to the "fluxus hepaticus," a slower form of the disease, prevalent among those who have long resided in that climate. The distinction drawn by our author between colonitis, as a rarer form of dysentery, in which there is diffused inflammation of the rectum and colon, and the more common form, in which the mucous glands of the great intestine are the primary centres of the inflammation and ulceration, the intermediate mucous membrane being, at least sometimes even in fatal cases, free from inflammation, is one, if not unknown to European pathologists, at least unacknowledged by them. Nor does it seem to be as yet a received view in India, though the affection of the glands in dysentery has already attracted the attention of several observers besides our author. Some of our author's numerous dissections support his statement, that the mucous membrane intervening between the ulcerated glands is sometimes natural. And what he claims as his own, is not the discovery that the glands of the great intestine are much affected in dysentery, but that this affection is not incidental; and that these are, in fact, the primary centres of inflammation and ulceration. It is somewhat remarkable, and rather confirmatory of the author's views, that several writers on tropical dysentery, as Ballingall, Twining, and Murray, have spoken of these inflamed and ulcerated glands as vesicles or pustules. Dr Parkes regards these glandular bodies as peculiar to the colon. This idea is superfluous—they are manifestly the mucous follicular glands of that part of the intestine; and the commonest form of simple acute tropical dysentery, according to his view, might be properly termed acute follicular inflam-

mation of the great intestines, corresponding to the Dothenenteritis of Bretonneau in the small intestines. Besides the question, whether our author's view be correct as respects tropical dysentery, it would be of much interest to determine if there be corresponding varieties in the forms of European dysentery. The connexion of enlarged follicular glands with diarrhoea and dysentery has been often remarked in temperate climates, but we are not aware of any distinct attempt to distinguish follicular dysentery from general membranous dysentery.

On the subject of European dysentery, we give, in contrast, some abridged passages from the excellent work of Lebert, "*Physiologie Pathologique*," to which we referred, with deserved commendation, in our two preceding numbers:—"Dysentery is a true inflammation, as is shown as well by the symptoms during life as by the appearances after death. It is sometimes a slight malady even throughout entire epidemics, while in other epidemics it proves very fatal. It cannot yet be determined, for want of data as to the nature of miasma, how far this difference in different epidemics is dependent on the greater or less amount of that morbid agent. Catarrhal dysentery is a very superficial irritation of the mucous membrane, with an abundant exfoliation of epithelium and a copious serous secretion. In the severer cases, a great number of the vessels of the mucous membrane of the large intestines become quickly gorged with blood to that degree, that, next to pneumonia, it is the inflammation in which rupture of the capillaries is most frequent. The red coloured stools are not dependent on the mere exudation of the liquid elements and colouring matter of the blood;—it is the result of a rupture of the capillaries, as is proved by the appearance, under the microscope, of a considerable number of entire red globules irregularly distributed in the mucus or adhering to each other, as often as there is even a slight red tint in the stools. There is also an abundant exudation of mucus, with many pus globules showing distinct nuclei, and besides, numerous granular globules and epithelial scales. The small muco-purulent bloody clots seen at the commencement of dysentery, under the microscope, and even to the naked eye, resemble the first products of pneumonic expectoration. At this period the mucous membrane has a lively red, velvety aspect, and appears covered with minute false membranes, ecchymoses, and small clots of blood. The elements of the tissue are merely distended, turgid, and opened up by the infiltration of a reddish serosity. At this period, dysentery is capable of rapid cure under proper treatment. More frequently it proceeds farther. By degrees, the glandular, the fibro-globular, and vascular elements of the mucous membrane, pass into a state of ramollissement and disorganisation; portions of the membrane are reduced to a pulp; the cellular tissue, infiltrated with serosity, throws up portions of it in plates before they are carried off by the evacuations; the muscular tissue is then laid bare, the ulcerations, however, have not

perpendicular borders, but pass insensibly into less degrees of morbid alteration. Considerable masses of pus, blood, and mucus, are passed by stool under the form of pseudo-membranous exudation; and the termination may be by gangrene, with charring destruction of large portions of the mucous surface.

"When a favourable change is at hand in severe dysentery there is an alteration in the aspect of the stools; there is still much blood, but the elements of the bile reappear, presenting to the naked eye the aspect of irregular concretions of greater or less extent, and, under the microscope, the form of colouring matter infiltrating the several elements, and of oblong and narrow plates or scales; the pus and granular globules diminish, while the crystalline products seen at the onset of dysentery continue abundant. The mucous membrane, always red and softened, by degrees recovers its normal thickness, the circulation being re-established in it; the ulcerations, however, cicatrize but slowly, and often show little tendency to the reparative process, so that the result is a chronic dysentery.

"Cicatrization takes place by fibro-cellular organization, and often produces alterations on the form of the intestines, and contractions in their calibre. In some more rare cases, the tissue of cicatrization, so subject to ulcerate, becomes the origin of deep and extensive ulcers, which, when their seat is in the rectum, may be mistaken for cancerous disease." We must take another opportunity of presenting to our readers some account of Lebert's examination of the stools in dysentery.

The second part of the work of Dr Parkes, which treats of Hepatitis, is also full of interest. Our limits permit us merely to quote the following view of the varieties of this disease met with in his experience.

"1. Hepatitis succeeding gastro-duodenitis, with which hepatic congestion may or may not be combined. This is the common form of liver disease in India. It is a chronic disease, generally leading to enlargement, and rarely ending in abscess.

"2. Hepatitis succeeding dysentery, to which, however, it is not immediately consecutive, as in the complication described under the head of Dysentery, but is generally connected by an intermediate stage of duodenal dyspepsia and hepatic congestion. This is often attended with temporary enlargement.

"3. Hepatitis nearly latent till it has terminated in abscess. This disease is generally returned as dysentery; but the course of events is quite dissimilar to that which prevails in hepatic abscess consecutive to dysentery. This is probably an incurable disease. It corresponds to one form of Twining's 'Central Abscess.'

"4. Hepatitis secondary to dysentery, remittent fever, or cholera. The two first-named diseases are common precursors of hepatitis; and it may be reasonably inferred that, in certain districts, fever will be a very general forerunner.

"5. Hepatitis suddenly arising, and denoted by the usual nosological symptoms. This appears to be a disease seen chiefly in new-comers, and is probably a consequence of great overaction of the liver, consequent on change of climate, and on too rich diet. According to my limited experience, although sometimes seen, it is by no means the most usual form, nor has it much tendency to terminate in suppuration."—l'p. 163, 164.

With this quotation we reluctantly take leave of Dr Parkes, assuring our readers that his work is well worthy of a most attentive perusal.

The Structure and Functions of the Female Breast, as they relate to Health, Derangement, and Disease. By E. W. TUSON, F.R.S., Surgeon to the Middlesex Hospital. London: 1846.

THE following passage from the preface sufficiently explains for whom this work was intended:—"In this division the young mother will find some useful observations, which, if followed, may be serviceable in allaying pain and preventing many inconveniences attendant upon lactation."—(P. xv.) We should have expected an author, who proclaims so loudly his desire for the improvement of the profession, to have directed his "useful observations" to the medical attendants of "young mothers;" but it appears he has been grossly slandered by some of these. He says, "In introducing new remedies, many difficulties have presented themselves, which, I must own, could but have been little anticipated, particularly amongst members who fancy themselves branches of a liberal profession, who on many occasions have been pleased to term my endeavour to advance the practice of medicine, 'quackery,' for giving those remedies of which I knew not the dose or effects."—(p. 12.) We feel strongly tempted to give, at random, one or two of the cases detailed in the book before us, and lay down our pen, by asking our readers if such a heinous charge as that of "Quackery" could, at *any* time, have been justly preferred against the narrator; but we must content ourselves with simply enumerating a few of his feats.

At the end of the volume fourteen cases are detailed in such a manner as cannot fail to give very general satisfaction to every female reader; and, at the same time, the results must impress the medical philosopher with a profound awe and reverence for the author, who has for ever set at rest the question,—is cancer curable? Why, we find it disappearing, as if by magic, under the use of iodide of mercury, chloride of carbon, iodide of potassium, decoction of bark, lotions of hydro-chloride of ammonia, and a host of other remedial agents too numerous to specify. But it may be asked, in which drug an author of such an extensive experience as Mr Tuson places the greatest confidence? We confess we have not been able to discover any very marked predilection in favour of any single article of the *Materia Medica*. The great success which has followed the use of nearly every article, on which he stumbled, seems to have led him to change his prescriptions perpetually, as if in search of substances which could *not* cure the disease.

It is unnecessary to enter upon the formal analysis of such a book as this. It is made up of quotations, which vary in length from one to thirty pages, from the works of Sir A. Cooper, Liebig, Turner, Brodie, &c., &c. Views and opinions at utter variance with each other are recorded successively without note or comment, showing, clearly, that the compiler was unable, or had not taken pains, to comprehend their real value and bearings. In a literary point of view, Mr Tuson's book is in every respect a miserable production.

The Sanative Influence of Climate. By Sir JAMES CLARK, Bart., M.D., F.R.S., &c. Fourth Edition, 12mo., pp. 412. London: 1846.

SIR JAMES CLARK'S "Sanative Influence of Climate" has been so long before the profession that it must be familiar to our readers. A fourth edition has just issued from the press,—a satisfactory proof, if any were wanting, that its excellence is duly appreciated. We wish we had more such books, in which the reader, while learning facts of vital moment in practice, at the same time insensibly imbibes the true spirit of observation, and the real character of sound principles in medicine. These are not empty words of praise. We hardly know a work in which the correct tone of an enlightened medicine is more uniformly preserved, apart alike from sceptical supineness, and from officious interference with the sanative efforts of nature. Sir James is claimed as a disciple of the rising sect of WAITERS UPON NATURE. This we dispute. His remedial treatment is far from expectative—he is an enemy to indiscriminate drugging, as every well educated member of the profession must be, who has not been spoiled by the necessity of compliance with such a system of practice as still prevails too generally in England; but of his faith in the power of remedial treatment, exclusive of what belongs to regimen, when employed at the proper time, and under proper circumstances, this work yields unequivocal evidence. It is the misfortune of medicine to be liable to extremes. No sooner is any mode of treatment, whether it be a new, or only a revived practice, found to be strikingly beneficial, than, ere long, it is carried beyond those limits within which its usefulness lies, so that forthwith it passes into an instrument of mischief. As the error becomes apparent—and this is often the work of time—a reaction arises by which things are carried into the opposite extreme, and a usage which, within proper bounds, was a means of safety, is wholly lost to the bulk of the profession. The history of medicine leaves no doubt of the truth of what we have just said.

It is long since the drugging system began to prevail in England; it dates from the rise of the apothecaries as an order of prac-

titioners. This practice, we firmly believe, was, for many years, more inert than mischievous—the grosses upon grosses of draughts daily sent out were more frequently than otherwise harmless placebos. And this inert method did not cease so long as the scantiness of their education kept them cautious. But as soon as the apothecaries began to participate in the knowledge, as well as in the emoluments of the profession, then, as it seems, they began to use the powerful drugs, which successively came into fashion, with the same profusion with which they had been accustomed to send out their coloured waters; and the same hurtful practice infected other orders of practitioners. Of late years this error has begun to show itself in a strong light,—the more extensively, owing to the improved education of all descriptions of practitioners. And there is good reason to believe that it has been for some time slowly correcting itself. But what we fear is the rush into the opposite extreme, so ridiculously the burden of page after page in the history of medicine. And there are already symptoms apparent of an approaching revolution of this character, which, unless counteracted, will mischievously destroy the faith of the great body of the profession in the whole efficacy of treatment. And we feel assured that the moment inert treatment becomes the fashion of the day, diagnosis will be neglected, more particularly that nicer kind of diagnosis which regards the influence of constitutional peculiarities, on which alone a system of treatment by regimen in protracted diseases can be founded. If medical men once come to believe that remedies are of non-effect, in any disease, what should induce them to use the pains requisite to distinguish one malady, or one form of a malady, from another? It is the fear of doing hurt that keeps men most alive to the phases of a disease.

It is because we see signs of the approach of such a revolution of greater or less extent, that we are desirous to claim Sir James Clark as a sound believer in the efficacy of remedial treatment, when applied with knowledge and judgment—for this his most popular work with the profession being necessarily conversant only with chronic diseases, in which the drugging system is most pernicious, and the subject of it, as a matter of course, leading him to dwell on common errors of practice and on the great usefulness of regimen, it is easy to see how readily his high authority may be made subservient to the purpose of shaking the faith of the profession in the beneficial effect of remedial treatment. We only ask that the sentiments ascribed to Sir James shall not be taken on trust, but that each of our brethren may read and ponder for himself; and we feel assured that no one will fail to come forth from the perusal a firmer believer than before in the curative powers of treatment.

We had no intention of making any analysis of a work so long before the profession as Sir James Clark's book on climate. This edition is considerably enlarged and improved. An account of the climate of Egypt is now given for the first time—the account of

the climate of Madeira is enlarged—and Sir James acknowledges the assistance he has received, in regard to this climate, from Drs Combe and Renton. On the climate of Florence, he has received new information from Dr Playfair, who has resided there for many years. The account of Bournemouth and Branksome, sheltered places on the coast of Hampshire, nearly opposite to the isle of Wight, is new—a peculiarity of both places is the abundance of pine plantations around, giving, Sir James says, to these spots more the appearance of a district in the Highlands of Scotland than in the south of England.

Under the head of artificial climate, Sir James has gone at somewhat greater length than formerly into the subject of ventilation. He recommends Dr B. Reid's work for information on the subject, and, especially, approves of Dr Arnott's chimney-ventilators. The chimney-ventilator "consists in a valved opening into the chimney, near the roof of the room, the valve being so nicely adjusted and balanced that, whilst it admits a free current of air from near the ceiling—the region of the most impure air—into the chimney, it prevents all return of smoke. By this simple but truly philosophical contrivance, the air of our rooms may be kept in a state of great purity by night as well as by day."

The account of the climate of Egypt is very interesting. It is an excellent winter climate for invalids requiring a dry warm atmosphere. If we remember right, Celsus recommends Egypt for the consumptive; and Clot Bey, Sir James says, considers the climate of modern Egypt well suited for invalids disposed to that disease. The whole work has been carefully revised and corrected, and the meteorological tables improved.

Part Third.

PERISCOPE.

SURGERY.

CASE OF TRAUMATIC TETANUS, FROM THE ATTEMPT TO EXTRACT A TOOTH, CURED BY
ICE APPLIED TO THE SPINE. By JOHN E. M'GIRR, M.D.

A LADY, twenty years of age, applied to a dentist to extract the second molar tooth, on the right side of the lower jaw. The tooth broke, and after several ineffectual attempts to remove the stump, some caustic, supposed to be nitric acid, was applied, and the patient went home. Five days after tetanus came on. Two days after its commencement, she was found in the following state: From one to four spasms occurred every hour. At two P.M. the worst occurred; and from that time until the turn of the night, they were very frequent and severe. The jaws were tightly locked; opisthotonos was severe,

and there was pain and retraction at the epigastrium, returning every twenty or twenty-five minutes, followed by excessively violent paroxysms—three generally succeeding each other within a minute's time. The temporal and masseter muscles were the seat of very great pain. The head was thrown back, and every muscle was in a state of rigid contraction. She answered by signs, and there were severe pains shooting from the sternum to the spine. Swallowing was performed with the greatest difficulty; and twice on that day the very effort produced spasms. The belly was very hard and painful on being pressed; and, when pressed upon, muscular twitchings agitated the entire body. These twitchings were constantly present between the spasms, and the muscles of the entire body were affected during the paroxysms. The muscles of the head, neck, throat, chest, extremities, hands, and fingers, were painfully contracted. "The eyelids were drawn down tightly over the eyes; the patient could not move them; and when I raised them up, which I found it difficult to do, the eyes were turned up. The countenance was so much distorted that I would not have recognised her as one with whom I was well acquainted." The pulse was wiry and beating 130. There was suppression of urine for twenty-four hours. No account appears of the treatment during the first two days; on the third a blister was applied from the temple of one side to the chin, the dressing being of mercurial ointment and muriate of morphia; bags of ice were applied to the whole tract of the spine; and a grain of muriate of morphia was ordered every hour, which was continued till stertorous breathing was induced. There was no remission in the early part of the night, but about four in the morning she fell into a quiet sleep, and awoke greatly relieved. During the next twenty-four hours she had in all eleven spasms, six of these being during two visits of the medical attendant. In the course of the fifth day, she had only three slight spasms, and these occurred at one visit, and in the evening of the same day the jaw became relaxed and moveable. On the seventh and eighth day, there were one or two slight spasms, and none afterwards. On the fourth day, she vomited some dark green matter, and the vomiting was followed by some of the spasms already reckoned up. She did not speak or open her eyes till the evening of the sixth day, but, though the eyes were opened, she could not distinguish light from darkness till the evening of the seventh day, and the eyesight was not completely restored till the thirteenth day, the recovery of sight being preceded by an evacuation of blood and mucus from the bowels, and the stoppage of the menses, which had ceased at a regular period two days before the tooth was broken, and had recurred on the seventh day. Besides the symptoms already noticed, she said she had felt a tingling sensation passing up from the extremities, and suffered pain shooting from the sternum to the spine, and she described this pain as having been terrible till the ice was applied; as late as the seventh day she complained of pain in the temporal and masseter muscles; and on the same day she spoke of numbness of the tongue, saying that it felt very much swollen in the beginning of the disease, and that she knew the spasms to be approaching as the numbness began at the root and extended to the point, and then the spasms occurred. On the seventh day, there was an offensive evacuation from the bowels. The application of ice to the spine was continued till the evening of the fourth day, or for twelve hours after the first relief was observed. On the fifth day, a blister was applied to the spine on account of pains. The use of muriate of morphia was renewed as occasion seemed to require; and the bowels were kept free by means of purgatives and enemata; the only other remedy employed was nitric ether, when the morphia began to disagree. Wine was given freely from the evening of the fourth day. About the eleventh day, there was some threatening of a relapse, which was easily arrested.—Abridged from the *Philadelphia Medical Examiner*, and *Dublin Medical Press*, July 22d 1846.

In our abridgment of the above case, we have omitted, we think, no mate-

rial circumstance. We consider it one of much interest. Yet we cannot agree with Dr McGirr, that it is an unequivocal case of traumatic tetanus. We think it bears indisputable marks of being a case of mimosis, or one of that form of hysteria which puts on the aspect of tetanus. It is beyond question that the tonic spasm in hysteria may be just as complete and severe to appearance as in true tetanus, with this difference, that the spurious tetanus is not known to prove fatal, as so commonly happens in the other, especially when the result of an injury; and it is equally certain, that one fertile source of the reputation of many insufficient remedies proposed for tetanus, has been the confounding of the spurious with the true disease. It is a mistake, however, which, we confess, it is not easy to avoid; nor can any one be blamed for treating such a case as if it were true tetanus, since there are no sufficient means of diagnosis;—nay, we should rather say that it is the duty of the medical attendant to treat every such doubtful case as if it were a case of true tetanus. But it is also his duty, when the result and whole history of the case are before him, to guard against imposing on himself and his brethren, by ascribing to some before unproved remedy the cure which was owing to little more than the spontaneous efforts of nature. We cannot, therefore, subscribe to our author's faith in the efficacy of ice to the spine in true tetanus, though it may have shortened the severity of the symptoms in the spurious case.

As regards conclusions to be drawn from the results of treatment, it is to be remembered that the tonic spasm occurring in a female without the application of a cause of acknowledged potency, is, "*prima facie*," doubtfully a case of true tetanus; and as respects the case before us, there are certain symptoms which, to our minds, convert this doubt into a certainty of its spurious nature. In the first place, the breaking of the tooth took place when the patient, who is described as young and plethoric, had hardly recovered from the menstrual state; again, menstruation recurred before the attack subsided, and complete freedom from the symptoms was not obtained till the menstruation ceased; and it should, perhaps, be added, that for a short time after this cessation, there was a slight tendency to a relapse of the disease. Our author says, "The loss of sight was something that I had never read of as occurring in this disease." Yet if it had been suggested to him that the disease was nothing else but hysteria, we feel certain that he would not have been able to make that observation; temporary blindness, indeed, seems to be a not uncommon accompaniment of hysteric trismus. Though we feel convinced, that not only this case, but that many of the cases of the tonic spasm reported to have been cured by the outward application of cold, as by immersion in water, were really cases of spurious tetanus,—yet we should be far from dissuading any one from giving a fair trial to the bags of ice when an opportunity offers.

DEFORMITY OF THE INFERIOR EXTREMITY, PRODUCED BY A BURN IN INFANCY, CURED BY OPERATION IN ADULT AGE. By M. A. BERARD.

The patient was a female 23 years of age, and the deformity was the result of a burn when an infant of four or five months. The burn affected the limb posteriorly from the hip to the ankle. When she came into the hospital so many years after the accident, the leg was strongly bent upon the thigh by means of a web of a triangular form, having one of its sides attached to the whole length of the leg, another to the whole length of the thigh, and the third side presenting a free border. The limb had been useless during her whole life, and was in a state of atrophy. M. Berard had recourse to the following operation: He divided the cicatrix from its base to its summit, or through an extent of about eight inches, and by subcutaneous section cut through the biceps, the semi-tendinosus, the tendo Achillis; then, placing the limb in an apparatus for permanent extension, he by degrees succeeded in extending the leg upon the thigh. Five months after the treatment commenced, the wounds had cicatrized, the limb was straightened, the movement of the tibio-femoral

articulation was free. Owing to the long immobility of the limb, it is atrophied and shorter than the other, and the patient wears a thick-soled shoe. It is now five years since the operation was performed. The inferior extremity remains straight, and walking is easy. She has walked without difficulty ten leagues in a day.—*Gazette des Hôpitaux, and Gazette Medico-Chirurgicale*, 20 Juin 1846.

CURE OF HYDROCELE WITHOUT ANY IRRITATING INJECTION. By M. HORVEY.

For thirty years M. Horvey has employed, for the treatment of hydrocele, a process which permits of a radical cure without injection. The following is his process:—He begins by evacuating the fluid with a trochar, then immediately after he applies, over the whole scrotum, a large cataplasm of vinegar, for the purpose of exciting inflammation; this takes place at the end of a few hours. When it has reached a sufficient extent, he substitutes for the vinegar cataplasm one made of bread and milk. In a short time the pain and inflammation abate, and the cure is complete. It is then proper to administer a brisk purgative.—*Gazette Medico-Chirurgicale*, 13 Juin 1846.

We cannot help doubting the frequent efficacy of this plan; further evidence is required of the extent to which it is successful. It is well known that the simple evacuation of the fluid in hydrocele is occasionally followed by a radical cure.

CASE OF PERITONITIS, IN WHICH STRANGULATION OF A PORTION OF THE SMALL INTESTINE IN THE INGUINAL CANAL WAS DISCOVERED AFTER DEATH. By M. GOUZÉE.

A soldier, 21 years of age, was brought to the military hospital in the afternoon, with violent pains in the abdomen. The pains, he said, began in the previous night, without any known cause, and were accompanied with shiverings; he had nevertheless appeared on parade in the morning, but was soon obliged to desist, and reaching his quarters he was attacked with vomiting. He had had no motion of the bowels from the previous evening. He had enjoyed good health, with the exception of some colic pains five or six months before. The abdomen was painful in its whole extent, and particularly in the umbilical region—here there was intolerance of the slightest pressure. There was no vestige of tumour in the belly or in the contiguous parts. The pulse was small and frequent, the thirst urgent, and the suffering such as to occasion constant moaning and tossing. The indications of an intense peritonitis being manifest, an active antiphlogistic treatment was prescribed, but in the night, nine hours after his entrance into the hospital, he was suddenly seized with copious vomiting, partly feculent, as the attendants believed, and immediately after expired. The circumstances of the case led, in the autopsy, to the search for obstruction of the bowels, and what could not be suspected before death, there was found a portion of the ileum, the size of a hazel nut, fixed in the inguinal canal. About two-thirds of an intestinal convolution were wound up and compressed in that aperture. There was no accumulation of feculent matters in the neighbouring parts of the herniated intestine. The peritoneum was the seat of a vivid injection. This redness was very marked in the umbilical region, and diminished towards the region beneath, where it entirely disappeared. The portion of intestine confined in the inguinal canal was of a deep red, and this colour was strictly limited to the strangulated portion. There was no trace of exudation in the inflamed parts of the peritoneum.—*Ann. de la Société de Médecine d'Anvers, and Gazette Medico-Chirurgicale*, 23 Mai 1846.

ON AN EGYPTIAN OPHTHALMIA OBSERVED AS AN EPIDEMIC IN THE AUSTRIAN
GARRISON IN MENTZ. By Dr MÜLLER.

In the autumn of 1845 a camp was established half a league from the town of Mentz, the troops being relieved every eight days. The soldiers were exercised during the day on a sandy plain, and passed the night in small tents, each containing eight men; they slept on straw spread on the ground in their cloaks. The heat was sometimes so great that they were often obliged to undress. With the exception of some rheumatic diarrhoeas, the general health of the camp, after several weeks, was good. The diet of the soldier was the same as usual, though probably more ardent spirits were consumed. There had been no epidemic Egyptian ophthalmia in Mentz since the year 1818, when it was very severe in the Prussian garrison; a few isolated cases had been observed at times, but never in the Austrian garrison. Some ophthalmias, regarded at first as rheumatic, but quickly pronounced to be slight forms of Egyptian ophthalmia, were observed in the camp, and it was broken up without delay. Five weeks after the establishment of the camp the epidemic broke out. The first patients had merely a slight inflammation of the conjunctiva, but from the external angle of the inferior eyelid to its middle point there were phlyctenæ, with rounded summits. There was no intolerance of light, no true inflammation, no fever, no functional disorder; in some cases only the patients complained of a feeling of irritation and of coloured appearances around a flame. The cases on the first day amounted to 100, and at the end of the first week they reached 1000, being a fourth part of the Austrian garrison. The remedy resorted to was cauterization with nitrate of silver. The author describes particularly the appearance of the disease before cauterization, and also its appearance after the application. Before cauterization the symptoms observed in ten soldiers were as follows:—The look free; the eye-ball clear, not more humid than in health; the eyelids neither swollen nor red, without lacrymation or increase of mucosity; on lowering the inferior eyelid, there was to be seen, in the external angle, at the junction of the eyelid and the conjunctiva of the eye-ball, several phlyctenæ, of which, in general, that placed higher, isolated, the first to appear, was the most developed; by degrees vesicles spread towards the middle of the eyelid, and covered almost the whole of its internal surface; in other cases there remained a larger surface unaffected, and there was merely a string of vesicles on a projecting fold of the conjunctiva. The most recent phlyctenæ were small, diaphanous, hemispherical, the size of a grain of millet, or even smaller. The conjunctiva was, in the beginning, thrown into ridges by some fine blood-vessels; but, by the second or third day, it had a more vivid colour, sometimes bluish, and covered with numerous papillæ. The folds of the caruncula lacrymalis and of the conjunctiva uniformly remained unaffected; the conjunctiva of the eye-ball was always clear, though sometimes the extremities of vessels reached it from the palpebral conjunctiva—yet these never extended to the cornea, which was always very transparent. The upper eyelid, the lacrymal gland, the lacrymal canals, the glands of Meibomius, were not affected with the disease beyond a slight increase in their secretion. After cauterization, the eyelids were more or less swollen, the secretion of mucus was augmented, and the conjunctiva was covered with white eschars, on the separation of which were seen small pointed papillæ, gradually covering the whole eyelid, and giving to the conjunctiva the appearance of velvet seamed with vessels of greater or less magnitude. The conjunctiva of the eye-ball, chiefly over the sclerotic, then appeared irritated by the effect of the cauterization; and this was sometimes repeated to repress the excess of granulations.

In the Prussian garrison of the town, 35 soldiers out of 1350, the whole number of the garrison, were affected with Egyptian ophthalmia. Its form, however, was strikingly different from that observed among the Austrians. The eye-lids were swollen, the conjunctiva of the lower eye-lid and of the eye-

ball strongly injected, puffed up, covered with granulations, thrown into plaits, and moveable. At the external angle of the eye were found several specks, composed of true sacs; the plica semilunaris, as well as the caruncula lacrymalis, were very red, and puffed out; the lacrymal secretion was slightly increased, without interruption to its free discharge, and the Meibomian glands gave off much pus. At the commencement, the patients experienced a feeling of itching in the eye, some dazzling and intolerance of light; such was the state of the disease on the second day. After two or three days, by the employment of fomentations with a solution of nitrate of silver, and friction with mercurial ointment in the suborbital region, there was a great diminution of the mucus secretion, of granulation in the conjunctiva, and of swelling in the eyelids. On the fifth or sixth day of treatment, the granulations had almost entirely disappeared; nevertheless the conjunctiva assumed a velvety aspect, of redder tint, somewhat blue, and spreading to the ball of the eye. Under the treatment, continued for ten or twelve days, all recovered without impairment of vision. In the severer cases, with excess of granulations, cauterization with the solid nitrate of silver was successfully resorted to. No detraction of blood was employed. In the severe cases, tartar emetic was administered in repeated doses. The strong solution of nitrate of silver was dropped into the eye every two hours, and the accumulating mucus carefully removed. When the puffing up was very considerable, M. Bock, of the Prussian garrison, removed the tumefied parts of the conjunctiva with the scissors, and cauterized the surface strongly with solid nitrate of silver.

Chilling during the night, as the soldiers slept on the ground, in confined tents, dust, the excessive heat of the sun, reflected by an immense sandy plain, and perhaps the abuse of ardent spirits, were among the concurrent causes of this epidemic. The eruption, the phlyctænæ, were the characteristic mark of the epidemic; all the other symptoms, the inflammation, the change in secretion, were merely consecutive. The author regards the ophthalmia observed in the Austrian garrison as a more benign form of that which attacked the Prussians. He adds, that contagion did not appear unconcerned in its propagation.—Abridged from *Zeitschrift für die Gesammte Medicin und Gazette Medicale de Paris*, 8 Août 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

CASE OF CYNANCHE LARYNGEA, THREATENING APNŒA, RELIEVED BY THE OPERATION OF LARYNGOTOMY. By H. P. ROBARTS, F.R.C.S.

In this case the patient, a reverend gentleman, was 58 years of age, of spare habit and irritable temperament. About the middle of September he was attacked, after a restless night, with pains in the limbs, lassitude, shivering, difficulty of deglutition, and soreness of the right tonsil. He was relieved by remedies, and walked out for the next few days, though under treatment. On the morning of the sixth day, the medical attendant was sent for at a very early hour, when he found the pain and difficulty of deglutition so great that nothing could be swallowed. He spoke with pain and considerable effort, though the voice was loud, and not hoarse or altered in character. There was great tenderness about the left side of the throat, which extended in a less degree over the os hyoides; the skin was hot and dry, the pulse 80 and full. There was no dyspnœa at this period, but the patient could not snuff up with his nostrils—one of the symptoms, according to Marshall Hall, of laryngeal disease. Leeches, warm fomentations, inhalation of hot vinegar and water, and a purgative, were prescribed. At mid-day Dr Theophilus Thomson saw the patient; at this time there was some difficulty of breathing, with aggravation at intervals, and attended with slight sibilation, but no disproportion between the impediment

to expiration and inspiration ; there were occasional fits of coughing, with a frothy expectoration ; the effort to speak had become more painful, but the voice was loud and clear. Though the case was manifestly one of severe character, yet, from the peculiar circumstances of the patient, it was not deemed expedient to have recourse to general depletion. A blister, however, was applied to the left side of the neck, and some belladonna ointment was rubbed over the right side. The difficulty of deglutition prevented the internal use of belladonna, which had been proposed. In the afternoon of the same day, all the signs of impending asphyxia supervened. He was sitting upright, tossing his arms about in every direction, the whole surface being bathed with perspiration, owing to his exertion—"the inspirations were laborious, protracted, and attended with a loud sibilation ; the expirations were comparatively quick"—the voice was not suppressed, but he spoke with great effort and acute pain ; the veins of the face were turgid, and the eyes blood-shot ; the features not much swollen, but the countenance, naturally dusky, had assumed a livid hue. It was resolved to open the wind-pipe immediately, as the only chance of saving the patient's life, and before the preparations were made he had sunk into a state of stupor, and on applying the ear to the chest, no respiratory murmur was heard. Some difficulties occurred in carrying the proposed operation into effect ; but finally the crico-thyroid membrane was divided by a crucial incision. The patient did not at first seem to breathe, though the blood which had escaped into the larynx was expelled with violence, yet, after a few seconds, he began to breathe softly, and fell into a tranquil sleep for a quarter of an hour, when he awoke and "began to write down his feelings, first in the French language, being a native of France, then, recollecting where he was, in English." The respiratory murmur became audible throughout the chest—"it had a coarse character, as though it entered the cells by a direct puff, rather than a gradual permeation." Some difficulties occurred during the first two or three days, but the case finally did well—the tube was withdrawn, owing to the inconveniences it produced, on the second day after the operation, and by the fourth day every thing was going on well. Five weeks after the day on which he was first taken ill, he was able to resume his duties in the pulpit. A few points in the treatment after the operation should be added : the blister which had been before applied was dressed with mercurial ointment, and the same ointment was rubbed into the arm-pits. The temperature of his room was kept at 70°, on account of the coldness of the surface which followed the operation. Calomel was freely administered in small and repeated doses, till, on the fourth day after the operation, the mouth became affected. To guard the calomel, chalk and opium were administered for a time ; leeches were applied to the neck on the evening of the day after the operation ; and on the fourth day hyocyamus was prescribed along with a saline draught ; finally tonic remedies were ordered.—Abridged from *Transactions of Medical Society of London*, vol. i., new series.

The author adds some interesting remarks, illustrative of the nature of the case, which seems to us to be of a doubtful character.

RUPTURE OF THE LEFT AURICLE. By JAMES VOSE, M.D., Physician to the Liverpool Infirmary.

A lady, aged 74, had been complaining for some days of pain at the epigastrium, and over the cardiac region ; there was some dyspeptic uneasiness, and great mental distress had been for some time experienced, through a severe domestic calamity. The bodily symptoms first referred to subsided in a great measure, and the day preceding her dissolution the patient felt much better. On leaving her at night, the attendant remarked that this lady was free, or nearly so, from uneasiness of any description. In the morning, the patient

was found dead in bed. She was lying in a supine posture, the limbs were straight, and the body quite warm.

Dissection, 24 hours P.M.—Upon slitting up the pericardium about three ounces of bloody serum gushed out, while a layer of coagulated blood was spread over nearly the whole surface of the heart. When this organ was removed and examined, a large opening was discovered in the walls of the left auricle; the form of this opening was nearly circular, and its edges were soft and somewhat ragged or fringed. The substance of the heart generally was thought to be a good deal softened.—*Edinb. Med. and Surg. Journal*, July 1846.

ANEURISM OF THE CÆLIAC AXIS. By JAMES TURNBULL, M.D.

A sailor, 23 years of age, pale and thin, came under my care in the Northern Hospital, in the beginning of June 1845, with a pulsating tumour in the epigastrium. He had recently returned from a voyage to the East Indies, during which he had an attack of dysentery, and he first perceived the pulsation at St Helena when recovering from it. He could assign no cause for the tumour, but thought it had been produced by the dysentery. The tumour was situated just under the cartilages of the false ribs on the left side. It was distinctly circumscribed, and had a strong pulsation. When the stethoscope was applied to it, a loud bellows murmur, having a hoarse aneurismal character, was heard during the pulsation. It was audible also along the aorta, but diminished in intensity in receding from the tumour. The sounds of the heart were quite natural, and the pulse was 76. He complained of severe pain in the tumour, increased by examination, and had at one time been unable to lie down. He had also sickness and vomiting, which were relieved by hydrocyanic acid with digitalis, and by muriate of morphia. On the evening of the 5th of June, he was seized with agonizing pain in the abdomen, collapse rapidly followed, and he died about 20 minutes after.

Inspection.—The abdominal cavity contained a large quantity of coagulated blood, which had oozed out from a small opening in a tumour, which at first appeared to be an aneurism of the aorta. The tumour was as large as a moderate-sized apple, and was found to be an aneurism of the cæliac axis, the three branches of which were seen coming off from its anterior part. The heart, the valves, and the coats of the aorta, seemed healthy.

FORENSIC MEDICINE AND MEDICAL POLICE.

ON THE BLOOD IN BODIES KILLED BY STRANGLING.

CICCONE made the following communication to the scientific association at Naples. After he had observed that in persons destroyed by asphyxia, the quantity of fibrine in the blood is diminished, and that the circulation continues for some time after respiration has become suspended; he further found, that in cases where the respiration, as also the return of the blood in the jugular veins to the heart, had become prevented by a ligature placed round the neck, whilst the greater circulation, and hence also the metamorphosis of arterial into venous blood, which, although now imperfect, takes place in the capillary vessels, the blood accumulating in the jugular veins, that portion of this fluid which is above the ligature contains the normal quantity of fibrine, while in that which is below the ligature the quantity is diminished. This observation is thus far of value, that if the body has not been killed by strangling, and the ligature has not been applied until after death, these changes in the blood will not be found. At the same meeting, Cappa detailed

his experiments; he found that in ten strangled fowls, death was in six instances caused by asphyxia and apoplexy combined; twice by asphyxia alone; and twice by apoplexy alone. In the last cases, on the microscopic examination of the blood above the ligature, its corpuscles were found distended, and generally without a central nucleus, some of them were elongated, and others again in conglomerated masses, while the blood corpuscles in all the other parts of the body presented their natural appearance. Where death had been the result of asphyxia alone, all these alterations in the corpuscles were, on the contrary, observed only in the parts of the body below the ligature; and lastly, where death had been caused by a complication of apoplexy and asphyxia, the alterations in the blood corpuscles could be seen in all parts of the body without distinction. The above test could therefore, in his opinion, be applicable only in the two first circumstances, viz. where death was from apoplexy or asphyxia alone, and not where it was caused by these two conjoined, which occurrence was by far the most frequent. Where death was the result of apoplexy, he had certainly seen the jugular veins thicker and more full of fibrine, and he had seen exactly the reverse where asphyxia had been the cause; but where death was accompanied with symptoms of apoplexy and asphyxia conjoined, this test was of no avail.—*Annali Universali de Med.* Nov. 1845.

MEANS OF NEUTRALISING EXHALATIONS OF SULPHURETED HYDROGEN.

M. Faucille, being charged with the direction of the works for exploring the fountain Lucas at Vichy, had to contend against a disengagement of carbonic acid gas, so abundant that it had become dangerous to enter the pits. He had in vain tried ventilation by heated air, clearing by means of compression, projection of water, either in a stream or a shower, lime water, &c. M. F. placed on the edge of the pit a small boiler, a pipe from which descended the excavation, conveying to the bottom of it the steam generated in the apparatus. The steam, on issuing from the mouth of the tube, became, after a few moments, opaque, and as it were full of sooty particles; it then gradually recovered its transparency. At the end of twenty-five or thirty minutes the pits could be entered without danger. The transmission of this steam was required to be continued during the whole period of the works, which were then advanced as far as necessary. M. F. had been able, under the circumstances, to apply the same process to destruction of the vapours of sulphureted hydrogen.—*Annales d'Hygiène*, Avril 1846.

ON THE PRESENCE OF LEAD, COPPER, AND ARSENIC IN CERTAIN KINDS OF PAPER, AND THE CHEMICAL PROCESSES NECESSARY TO DISCOVER SUCH IMPURITIES.

Government having been informed that sulphate of lead was used in the manufacture of the pulp for certain kinds of paper, caused the paper to be seized, and required a chemical examination of it. The experiments were conducted by MM. Payen and Chevallier, and they found that the paper contained $4\frac{1}{2}$ per cent. of the salt.

In order to ascertain the weight of the sulphate of lead, it was separated in the following manner:—The paper was incinerated, and the ashes obtained were mixed with carbonate of soda; this mixture was then boiled for three quarters of an hour, in order to convert the salt into the carbonate of lead; the insoluble matter was then collected upon a filter, washed with distilled water, and treated with diluted acid. When the carbonate was dissolved, a stream of sulphureted hydrogen gas was passed through the acidulated fluid, in order to convert the lead into a sulphuret; the sulphuret was then collected, washed, and, by nitric acid, converted into sulphate, and, lastly, the weight of the salt determined. It was ascertained that the paper contained sulphate of lead, by touching it with hydro-sulphuric acid, when it showed the usual dark

stain, the coloration being deeper in proportion to the quantity of lead which the paper contained.

The hydro-sulphuret of ammonia must not be employed for this purpose, because this re-agent communicates a dark stain to paper containing salts of iron, or in the manufacture of which sulphate of alumina has been employed, as this salt contains iron impurities.

Copper, arsenic, and lead, are present in paper, in consequence of the debris of coloured papers, scraps which owe their colour to salts of arsenic and copper, cards called porcelain, and papers coloured with red lead, all entering in the composition of the pulp used for the manufacture of paper.

The presence of copper was recognised by minutely dividing the paper, and placing it in contact with pure ammonia; the copper is dissolved, and may be obtained on evaporation. To show the presence of arsenic, the paper was carbonised by sulphuric acid; the carbonised mass was mixed with water, and introduced into Marsh's apparatus.

It is conceived that the quantity of lead, copper, and arsenic contained in the paper manufactured for wrapping up articles of merchandise is very minute; but it is equally interesting with regard to public hygiene, as well as to medico-legal researches, that we should be aware that these poisonous agents do exist in paper in various proportions.—*Gazette Médicale de Paris*, Juin 1846, p. 499.

POISONING WITH FLY POWDER. By DR DE SCHOBENS.

Among those causes of poisoning which are not the result of crime, but of negligence or ignorance, fly powder is a very frequent one. People are surprised to learn that this powder contains arsenic, and that it can kill men as well as flies; and hence the carelessness with which it is exposed within the reach of children and others. That which is generally employed, comes from the cobalt mine of Tunaberg, and is composed of cobalt, arsenic, iron, and sulphur. A few years ago, the author was called to a man who had swallowed a quantity by mistake for a purgative; he was soon attacked with all the usual symptoms of poisoning with arsenic; but not supposing that the poison for flies would be also poison for him, he took no remedy but a large quantity of milk, which he vomited immediately. Fifteen hours after he had swallowed the poison, Dr S. was called to see him; but he found the patient to be then too far gone for antidotal treatment to be of any avail. Stimulants and lime water were ordered, but the necessary medicines had scarcely been sent for when the patient died. The second case occurred recently in a child *ætat* 4. Dr S. was sent for immediately that the child took ill; and finding what had been taken, he at once ordered a dessert spoonful of the hydrated sesquioxide of iron to be given every half hour. The symptoms became gradually ameliorated, and the following day, the child, though weak, was almost well.—*Encyclographie Med.*, Mai 1846, p. 138.

POISONING BY CAMPHOR. By THOMAS REYNOLDS, M.D., Brockville.

Mr C., *ætat* 20, of a healthy constitution, and full habit, was standing in a shop where a druggist was breaking up cakes of camphor to put up in bottles. Talking to a bystander, he began to eat the crumbs of camphor, and unconsciously swallowed, bit by bit, probably from one to two drachms in the course of a few minutes. Feeling a degree of head-ache coming on suddenly, and without thinking of the cause, he went to the open air, felt greatly exhilarated, met a friend in the street, with whom he proposed to have a rubber of whist. Upon reaching his lodgings, he said he felt unusually clear-headed, and felt confident that he could play a capital game. Soon after sitting down, his gestures and conversation became very strange and wild. Leaving the room suddenly, he retired to his bed-room adjoining, and returned, to the no small

astonishment of his friends, naked and dancing wildly about, and attempting to jump out of the window. I was sent for, and upon questioning him, found that he had been eating camphor, as described above. I found him in a state of great excitement, almost amounting to phrenzy, his pulse 180 and small—conjunctiva injected—pupil not much dilated, scarcely sensible to light—countenance pale and haggard—breathing hurried, and at times greatly laboured—a frequent desire to make water, with some pain in the course of the spermatic vessels—urine quite clear, but having, as well as the perspiration, a very strong odour of camphor—a clammy sweat breaking out over the body. Drachm doses of vinum opii, which happened to be at hand, were administered every fifteen minutes. After the third dose there was a tendency to vomiting, which was freely encouraged by giving tepid water and vinegar. Some of the camphor was thrown up with the contents of the stomach. After the vomiting, drowsiness came on; but as the pulse was still very small, and the respiration hurried, it was thought advisable to keep him awake, and keep up the administration of the vin. opii. in doses of ʒss. every twenty minutes. After a few doses the pulse became fuller and less frequent—the countenance much less anxious—the respiration less hurried, and he was allowed to fall into a sleep, in which he continued for about three hours, starting at intervals, but becoming gradually composed. When he awoke, he had but a very confused idea of what had occurred; recollected something about camphor, and asked “What have I been doing? Have I been making a fool of myself?” &c. There was very little headache or stupor after the opium, but the stomach and bladder were irritable for a few days. These and all other unpleasant symptoms gradually disappeared after the use of a few bottles of Caledonia water. For some days he complained that he could not take his usual glass of wine at dinner, without feeling the effect upon his head; this would probably arise from the action of the camphor on his brain, as well as upon the other organs of the body. He described the sensation while under the influence of the camphor as most exhilarating, but gradually becoming oppressive. From the quantity of camphor taken, I have very little doubt this might have proved a fatal case but for the timely use of the opium; and as wine is recommended in these cases, perhaps the vinum opii is one of the best forms for its administration.—*The British American Journal of Medicine and Physical Science*, June 1846.

BLOOD AN ANTIDOTE TO ARSENIC. By M. APOIGER.

According to M. Apoiger, arsenic has a great affinity for blood, and that affinity is such that a chemical combination takes place between them in the stomach. To a dog, which had fasted for eighteen hours, there were given three grains of arsenic, and, a quarter of an hour afterwards, eighteen ounces of fresh calf's blood. The animal was attacked with perspirations, trembling, thirst, nausea, and debility; but in the evening all these symptoms had disappeared; he neither vomited, nor passed fæces or urine. Three days afterwards, six grains of arsenic were given, and, ten or twelve minutes thereafter, twelve ounces of blood, with the same result as in the previous experiment. On the fifth day, nine grains were given, and, immediately thereafter, nine ounces of blood; the symptoms were the same as in the first experiment. The animal had, at the commencement of these experiments, been affected with *pterygium* of the right eye, but within the last four-and-twenty hours this had quite disappeared. On the seventh day, twelve grains of arsenic and eight ounces of blood were exhibited. The perspirations were excessive; one might have imagined that the dog had just come out of the water; he passed fæces and urine, and howled. On the ninth day, eighteen grains of arsenic and six ounces of blood were exhibited. The usual symptoms were observed, and, besides these, convulsive movements, great agitation, and difficulty of supporting himself. At night these symptoms had disappeared. The animal after this

completely recovered his health. The author considers the total absence of vomiting as a most remarkable fact in connexion with the experiments. The dog being killed, the blood was found gelatinous, and the stomach and intestines inflamed. On analysis, the blood of the animal yielded two and a half grains of metallic arsenic, and the brain one and three quarter grains.—*Encyclographie Médicale, Mai 1846*, p. 141.

NEW MODE OF DISTINGUISHING BETWEEN ANTIMONIAL AND ARSENICAL STAINS FROM MARSH'S APPARATUS.

There are different methods employed for this purpose at present—*1st*, The application of heat, which volatilizes the arsenical stains, yielding a garlic odour. The antimonial spots resist this reagent. *2dly*, The action of the chlorate of soda, which dissolves the arsenical deposits, but leaves the antimonial unchanged. *3dly*, The solution by cold nitric acid, and the reactions which the residue of this solution evaporated to dryness yields when treated with hydrosulphuric acid. *4thly*, the action of iodine, which causes the arsenical spots to disappear, but on exposing them to the vapour of sulphureted hydrogen, the colour of the yellow sulphuret shows itself. *5thly*, The action of the hydrosulphuret of ammonia, which dissolves the antimonial spots, and sometimes detaches the arsenical in the form of metallic scales, *6thly*, The action of chlorine, which dissolves the arsenic deposits, but allows them to appear as sulphurets by the action of hydrosulphuric acid.

According to *M. Cottureau fils*, a new mode of reacting may also be employed under the same circumstances with advantage, viz. exposing the spots to the vapour of phosphorus. For this purpose the phosphorus is cut into very small pieces, and laid upon a flat surface, and over it the capsule containing the stains is reversed; the experiment is then left to itself, the action taking place at the ordinary temperature. All the arsenical deposits disappear in a few hours, while those produced by antimony resist the process for more than fifteen days; they, however, also finish by disappearing, and then, on exposing the capsule in a vessel containing a solution of hydrosulphuric acid, the gas, which is spontaneously disengaged from the fluid, is sufficient to make the arsenical stains appear as the yellow sulphuret of arsenic, and the antimonial as the red sulphuret of antimony. On slightly heating the phosphorus, the disappearance of the arsenical stains is accelerated, but the antimonial deposits remain unaltered.—*Journal de Chimie, Mai 1846*.

MIDWIFERY, AND DISEASES OF WOMEN AND CHILDREN.

NEW SYMPTOM OF MENINGITIS IN CHILDREN. By TROUSSEAU.

"We require," says Trousseau, "in a child labouring under meningitis, to pass our finger only once or twice over the skin to call forth a defined, almost erythematous, redness. This appearance may be seen several days before death, and even before the other symptoms of meningitis have become prominent. In children which suffer under other affections this redness cannot be produced even by frequent rubbing. This sign of meningitis may be produced on any part of the body, but more especially on the countenance." Trousseau found this appearance invariable in all the cases of meningitis which had come under his observation for some time past.—*Journal für Kinderkrank, Januar 1846*.

NEW OPERATION FOR OVARIAN DROPSY. By Professor KIWISCH.

The mode of operating will be best explained by quoting one of the author's cases. A peasant, æt. 30, the mother of four children, of which the youngest

was only a year old, was received into the hospital at Prague, on account of obstinate ischuria and constipation. The cause of these affections was found to be a tumour, the size of a head, lying between the rectum and the vagina. By careful examination the operator was satisfied that this tumour was not formed by the uterus, but by an enlarged ovary containing fluid. With a curved trocar a puncture was made in it, through the vaginal parietes. Through this about nine pounds of a chocolate-coloured fluid was drawn off, upon which the sac completely collapsed, and the uterus, which had been pushed high upwards and forwards on the brim of the pelvis, returned to its natural situation. The canula was left for thirty hours in the wound, to permit all the fluid to drain off. In ten days it was necessary to repeat the operation, and on this occasion the opening made by the trocar was so far dilated with a bistoury that a finger could be introduced into the sac; several pounds of fetid bloody pus and numerous flakes of lymph were removed. Water was injected into the sac with considerable force, and in order to keep the opening pervious, a thick curved uterine tube of tin was introduced into it, and fastened in front of the external genitals. During the ten days following the operation there was considerable fever and a good deal of fetid discharge; but at the end of a fortnight the discharge improved in quality, and diminished in quantity; the tube was then removed for some hours daily, so that the patient was permitted to take some exercise, and from this time she gradually recovered. In four weeks the wound had contracted so much that the tube could not be again introduced; and in about six weeks from the date of the second operation, the patient was dismissed cured. A year after this the author again saw the patient; she was then in perfect health; the uterus was in its normal condition and situation, and behind it the remains of the sac could be felt as a small hard and easily mobile body, causing not the slightest inconvenience.

The author states that the following conditions are necessary to ensure success:—*1st*, That there be no other complication, and that the tumour be unilocular, this is to be proved by its being entirely emptied by an exploratory puncture with a trocar. *2d*, That the cyst contain not more than fifteen pounds of fluid. *3d*, That the opening made be large enough to permit the easy introduction of the finger. *4th*, That the injections of water be of such a temperature as shall be agreeable to the patient, and that they be thrown deep into the sac. *5th*, That the tube introduced into the opening be withdrawn at intervals, and that its use be not entirely laid aside until the opening has become contracted, and the discharge has become solely purulent; if the opening contracts prior to this, it must be again enlarged with the knife.

Three other patients on whom the author operated, died from the effects either of the operation, or the previous disease. Of twenty-five cases which had been under his care, three only were radically cured.—*Prager viertel-jährig für Heilk.* 1846. Bd. ii.

ON TUBERCULAR INFLAMMATION OF THE BRAIN. By RILLIET.

The following are the author's conclusions from a long treatise which he has written on this subject.

1st, The ordinary tubercular meningitis may appear under three circumstances: it may come on while the patient is apparently in a state of perfect health; during an attack of confirmed phthisis; or lastly, it may be preceded by certain premonitory symptoms. *2dly*, These premonitory symptoms have been termed by various authors the first stage, and no one as yet has seemed to know their true cause—they have been attributed to effusion, to congestion, and to chronic inflammation of the membranes of the brain. *3dly*, The first stage has in its symptoms the closest analogy with the commencement of the formation of tubercle. *4thly*, In anatomical appearance, they resemble the deposit of granulations or miliary tubercles on one or more organs. *5thly*, The number and consistence of the tubercles is in proportion to the duration of the first

stage. *6thly*, The duration of the premonitory symptoms is in the inverse ratio of the duration of the meningitis. *7thly*, The course of the premonitory symptoms may be interrupted by the incubation of some typhoid affection, dentition, or the presence of worms. *8thly*, The acute period of the meningitis does not invariably follow the first stage of this affection, as it may either be removed by proper treatment, or it may pass over into phthisis.

ON THE USE OF THE COLD HIP BATH IN IRREGULAR MENSTRUATION. By
Dr CHMELIK.

"Cold water," says our author, "exerts a double influence on the female genital organs, the one a strengthening or contracting (*zusammenziehende*) influence, and the latter, an attracting (*zuleitende*) force; this by a prolonging action upon the genitals attracts to them the warmth, and excites the organs to greater activity to restore their lost heat, and hence causes congestion of the parts." The author then brought his theory to the test of practice, and was successful in many cases of amenorrhœa, where the means ordinarily employed had proved unavailing. He commenced first with the tepid, and then with the cold bath, twice daily, morning and evening, continued for half an hour each time. Generally after the use of the bath for eight days, the patient perceived a feeling of heat in the hypogastric region, and a dragging sensation in one or both inguinal regions; sometimes slight diarrhœa supervened, and in one case where menstruation had been suppressed for a year and a half, considerable swelling and inflammation of the external genitals came on. In all cases after the bath had been in use for four or five weeks, menstruation returned without the employment of any other remedial measures, and in most of the cases the catamenia had been suppressed for half a year or longer. The most stubborn cases which the author met with were those of young girls who had never menstruated, but in whom there were symptoms indicating deranged health, in consequence of the non-appearance of the discharge. These, however, also got well after using the bath for some months; but the author candidly admits that he had not many of this latter class under his observation. The author further points out the harmlessness of this remedy, in cases where suppressed menstruation arises from concealed pregnancy; he had one case of this kind under his care, and although the patient used the cold bath, as above prescribed, for a considerable period, she went on to the full time and was safely delivered.—*Oesterreich. Med. Wochens.* No. xiii. 1846.

SOLUTION OF THE SULPHATE OF IRON IN UTERINE HEMORRHAGE. By Dr HÖRING.

The author has employed this solution in several cases of uterine hemorrhage. In one case of hemorrhage from *placenta prævia lateralis*, injections of this solution and plugs saturated with it were found of great service. Two cases of *post partum* hemorrhage from atony of the uterus, yielded to injections of the solution. In the fourth case, a weakly delicate lady, at the period of the final cessation of the menses, suffered frequently from uterine bleeding, the last of which lasted in considerable quantity for a week; after the unavailing use of other styptics, ultimately made a complete recovery after having used injections containing the sulphate of iron for three days. The solution contained an ounce of the salt in $1\frac{1}{2}$ to 2 pounds of water; of this two ounces were thrown in at each injection. This solution has a slightly irritating effect, and in some cases caused trifling swelling and excoriation of the parts which it touched; these were removed by injections of cold water alone, which brought away with them dark coloured masses of blood mixed with the iron.—*Osterlens Jahrl. für pract. Heilkunde*, No. vi. 1845.

ON THE OSTEOPHYTE IN PREGNANT WOMEN. By MOREAU.

The author divides this formation into three degrees. *The first* shows itself here and there on the inner surface of the skull-cap in small rough bony specks

of a dark colour, of about 1 or $1\frac{1}{2}$ centimetres in diameter; in the fresh state they are easily removed, and are found chiefly in the depressions of the skull-cap, and sometimes also on the occipital bone; they are rounded on the edges, and of no regular form; they are attached to the bone. In the dry state they are yellow; they are rough on the side next the skull-cap, but smooth and polished on the inner surface, and about half a millimetre (about $\frac{1}{50}$ th of an inch) in thickness. *In the second degree*, the osteophyte is more extended, about three centimetres in diameter, and chiefly found on the frontal bone; it spreads itself over the sutures and grooves of the vessels, and is firmly attached to the bone; it is red in the fresh state, but yellow after maceration; and, like the bones of the skull, it consists of two hard layers, with a spongy one between them. *In the third degree*, the dura mater is coated with a covering of true bone, and extends, though imperfectly, even to the base of the cranium. When examined with the microscope, the surface next the dura mater is smooth, but the other is rough, and covered with numerous small fibres supposed to be vessels. These disappear when the osteophyte is dry, and can only be seen by the microscope. The osteophyte corresponds on both sides with elevations and depressions of the skull-cap and dura mater; it can always be separated from the skull-cap, and leaves its vitreous table uninjured and healthy. In 42 cases, Moreau found the first degree 13 times, the second 21 times, and the third 8 times.—*Journ. de Chirurgie*, 1845.

NATURAL CURE OF UTERINE POLYPI. By HILTSCHER.

The February number of the *Oesterr. Med. Jahrl.* contains a long paper on what the author terms the natural cure of uterine polypi. He effects their expulsion by the administration of ergot. We see nothing in his paper to recommend his treatment. He relates only two cases; in one of which the patient lingered in great torture for about thirty days before she recovered; and the second was under treatment for upwards of seven months, and, after narrowly escaping with her life from successive attacks of hemorrhage, the polypus ultimately required the ligature for its removal.

ULCERATION OF THE CERVIX UTERI A CAUSE OF ABORTION. By J. HENRY BENNET, M.D., Member of the Royal College of Physicians, London; Physician-Accoucheur to the Western General Dispensary, &c.

Dr J. Bennet of London, on examining the patient, a woman of 39 years of age, found the cervix uteri low in the vagina, voluminous, hypertrophied, and generally indurated, but not to any great extent,—the vagina under the speculum congested, and containing muco-pus,—the cervix presenting a large rosy tolerably healthy-looking ulceration, occupying both lips, and dipping into its cavity,—the uterus rather voluminous, but not preternaturally sensible to the touch,—the general health was impaired; she was weak; the tongue white; anorexia, cardialgia, constipation. Weekly cauterization of the ulcerated surface was practised with per-nitrate of mercury, or nitrate of silver; astringent vaginal injection, saline aperients, rest, light diet were directed, with evident improvement of the ulcerated surface. At the end of four or five weeks, Dr B. found that retroversion of the uterus had taken place since the previous examination a week before,—the cervix was high up behind the pubis, and could scarcely be reached with the finger, whereas the enlarged uterine fundus was lying low in the vagina, covered by its anterior parietes, and of considerable volume. Dr B. had for some time suspected pregnancy,—which suspicion seemed now confirmed, yet, after a very complete examination of all the circumstances on several occasions, it still remained doubtful. All attempts to reduce the retroverted uterus proved unsuccessful; and during the next four weeks the passage of the urine had become difficult, and other inconveniences had arisen, which threatened to increase to a serious extent; he was therefore induced to think of the plan suggested by Dr Simpson of Edinburgh, namely,

to use his uterine sound in such mal-positions. "If the woman was pregnant, its introduction into the cavity was calculated, it is true, to bring on abortion; but in the presence of an irreducible retroversion of the uterus, that, according to the best authorities, is the only resource left; whilst, on the other hand, if the patient were not pregnant, the uterine sound was nearly certain to give valuable information."

Dr Simpson's sound was accordingly employed. "This I found it impossible to effect in the lithotomy position, owing to the situation of the os behind the pubis; but on placing the patient in the usual obstetric position, the instrument, slightly curved, passed into the uterine cavity without any difficulty. Once within the uterus, I made it describe, without any difficulty, a semicircle, so as to bring the extremity of the instrument under the abdominal parietes, about a couple of inches above the pubis. Here I distinctly felt it, as also did the physician alluded to above. On introducing, however, the right index into the vagina, the large tumour which occupied the pelvis was felt as distinctly as ever. Although the uterus appeared raised by the sound above the pubis, the tumour did not seem to have been moved. The sound was then gently withdrawn. No pain had been experienced by the patient nor was a drop of blood or of any other fluid lost. The result of this examination was to convey the impression that the woman was not pregnant,—that the pelvic tumour was not in the uterus alone,—and that she was labouring under some ovarian tumour, which had contracted extensive adhesions with the posterior wall of the uterus, and had, in its fall into the pelvis, dragged the uterus down. The investigation was not then pushed any further. On the fifth morning from the day on which this examination took place, I was sent for to see this patient, who had miscarried during the night, giving birth to a four months foetus, which appeared to have been dead some time." On recovery, the ulcer in the cervix was found in the same state in which it had been two months before, and the same treatment was resumed, together with mild laxatives, tonics, and bitters, with preparations of iron. It was finally cured.—Abridged from the *Lancet*, 25th July 1846.

We regret we have not room for more of the particulars of Dr Bennet's singular case, or for the interesting remarks which follow.

Part Fourth.

MEDICAL NEWS.

ON THE CESARIAN SECTION, CONSIDERED IN A THEOLOGICAL POINT OF VIEW.

THE above is the title of an article in our excellent contemporary, the "Gazette Médicale de Paris," for July 25th, a few extracts from which, we think, may interest our readers. It appears that, some months since, a female died, somewhere in Brittany, six months gone with child, when the curé of the place sent for a medical practitioner, to open the mother's body and withdraw the infant, in order to its being baptized, if still alive. On the refusal of the practitioner, the curé found a farrier less scrupulous, who, making an incision, withdrew a dead foetus. The story got into the newspapers, and the priest fell under their lash, for what was represented as a culpable officiousness. He entered on a defence, undertaking to show that it was his duty to act as he had done. According to the Romish ritual, the priest is under obligation, after the death of a mother, at any period of gestation, to have the Caesarian section performed, to put the administration of the sacrament of bap-

tism in his power. On this point there are prescribed formularies, and special treatises, to direct the conduct of the priesthood. The following extracts are from the work of M. Bouvier, bishop of Mans, entitled, "*Traité d'Embryologie Sacrée*," which is of authority in theology:—

"Is there any obligation to perform the Cesarian section on a dead person ?

"To dispute the obligation in this case is impossible, since it is certain that most frequently we gain the opportunity of bestowing baptism on the infant.

"It is on midwives, on surgeons, and generally on all who take part in deliveries, that curés and confessors should impress the necessity and solemn obligation of having the Cesarian operation as quickly as possible performed upon the bodies of dead females. It is incumbent, however, not to omit it merely because delay has occurred, or proper precautions cannot be taken.

"Who should perform the operation ?

"It should be done by a professional person, and no pains should be spared to procure one. Failing such a one, it should be a midwife, or another woman, or a married man, or even, in a case of necessity, any person—but *never a priest*, unless it be absolutely impossible to accomplish it otherwise."

Then follow directions for the operation, as well as for the baptism.

The curé, in the case above referred to, made repeated application to a professional person, and, on his refusal, applied to the farrier, reading to him the instructions given by the Bishop of Mans for the operation. Thus the curé acted strictly up to the obligations imposed on him by his church. His conduct, in an ecclesiastical point of view, is irreproachable; and the abuse heaped upon him by the newspaper press was therefore undeserved. But the ecclesiastical rule may be at variance with the rules of medicine, and with the civil law. Our contemporary takes up the subject in this light: and, after some remarks of his own, cites from an article by Kergaradec, in which the question is considered under a threefold aspect, in relation, namely, to law, science, and theology. Kergaradec's conclusions under the medical and theological aspects of the case are as follows:—

"In a medical point of view, 1. Every woman more than five months gone with child, who dies undelivered, should be subjected to the Cesarian section, if the delivery cannot be accomplished by the natural passages. 2. The assistance of art should be resorted to at the moment of the mother's death, or at least as early as possible; the lapse of twenty four hours, of two, or even of three days from the mother's death, or even interment, do not exempt the practitioner from the performance of this duty.

"In a theological point of view, the author, in strict conformity with the doctrines of the church, proves, by reference to ecclesiastical authorities, 1. that baptism should be administered to every infant offering the smallest sign of life; 2. that after the death of the mother, there is a religious obligation to resort to the Cesarian section at all stages of gestation, and that, failing a professional man, that any individual, of either sex, may, and even ought to practise the operation necessary for the extraction of the child, without which it cannot receive the sacrament enjoined by the church."

Our contemporary proceeds to remark on these conclusions of Kergaradec, admitting that the medical view agrees with the ecclesiastical, up to a certain point. He adds, "As often, then, as a woman dies in the circumstances referred to, the Cesarian operation is obligatory in the view of humanity, as well as in a spiritual point of view—at once by the dictates of the civil law, and by the law of religion. But how early, in the course of pregnancy, is it proper or necessary, in either view, to resort to this operation? How long after the real or presumed time of death should it be practised? Might it, and ought it to be performed indiscriminately, in all cases, and at all periods, of pregnancy? By whom can it, or ought it to be done? With these points, the agreement between the rule of medicine and the rule of theology ceases—with these commence discord and difficulties.

With the member of the medical profession, the resort to the Cesarian section is subject to three essential conditions, open, in his eyes, to no exception; namely, *1st*, That the mother be dead; *2dly*, That the infant be living; *3dly*, That it be viable. The true limit of viability, in the belief of the physiologist, being fixed at the commencement of the seventh month, it is only after this period that the Cesarian section promises any chance of advantage as regards the life of the infant; and accoucheurs, in general, are of one mind to advise it only with this limitation. If to these restrictions be added the absolute necessity, admitted by all modern accoucheurs, to reject this operation, unless it be certain, on the one hand, that the mother is dead, and, on the other, that the infant is still living, it will be apparent how much abridged the number of cases becomes in which this operation is indicated or is rendered obligatory. In the view taken by the church, the matter is seen in a very different light. The church does not regard merely the viability of the infant, but its actual life. Baptism is obligatory at all the stages of foetal life; it is the opinion of all the casuists; the necessity of the Cesarian section, or of some other proceeding, by means of which the first sacrament may be administered to the infant, exists consequently at all periods of gestation. It is easy to see, when the theological rule is obeyed to the letter, how much the risk of error and danger augments. Should the professional man submit himself to the call of the priest, and proceed, in all cases of alleged pregnancy, to the incision of the woman's body when the last breath is hardly out? There are many medical men who would conscientiously hesitate; and when the surgeon thinks it proper to refuse, or at least to gain time for proof of the death of the mother, at the risk of the spiritual safety of the infant, is it to be pronounced a matter of indifference that the determination of the proper time for such an operation should be left to the judgment of persons destitute of physiological knowledge, and the carrying of it into effect to unskilful hands?

Our contemporary insists at some length on the evils of trusting the Cesarian section, in such cases, to any other persons than medical men. What, then, is to be done in those cases in which the church requires it, and the rules of medicine forbid it? Fortunately, a plan has been devised of late by a Belgian physician, M. Thirion, by which the rite of baptism may be administered without extracting a non-viable foetus from the mother's womb. It consists in throwing the consecrated water upon the presenting part of the infant by means of a hollow sound. It appears that this substitute for the ordinary form of baptism has already engaged the attention of some high theological authorities, and has met with their approbation. If it obtain the same approval from the ecclesiastical rulers of the Romish church, this seemingly irremediable clashing of doctrines between theology and medicine will be peaceably soldered up.

A BILL FOR THE REGISTRATION OF THE LEGALLY QUALIFIED PRACTITIONERS OF MEDICINE IN GREAT BRITAIN AND IRELAND. Prepared and brought in by Mr WAKLEY and Mr WARBURTON.

Ordered by the House of Commons to be printed, 7th August 1846.

[NOTE.—The words printed in *Italics* are proposed to be inserted in the Committee.]

1. *Preamble.*—*Registrars to be appointed.*—Whereas the laws relating to the practice of medicine in Great Britain and Ireland are numerous and complicated, and the public possess no means of distinguishing between legally qualified physicians, surgeons, and apothecaries, and the pretenders to a knowledge of medicine and surgery, and it is desirable that the names and qualifications of legally educated practitioners should be duly registered by competent authority, be it enacted, by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that it shall be lawful for one of Her Majesty's principal Secretaries of State for the time being, and

he is hereby required, within one month from the passing of this Act, to nominate and appoint three fit and proper persons, being at the time of such appointment qualified to be registered under this Act, to be registrars for carrying this Act into execution, one such registrar to be called the "Medical Registrar for England," another the "Medical Registrar for Ireland," and the third the "Medical Registrar for Scotland;" and also from time to time to appoint such clerks and other officers as the said Secretary of State shall deem necessary for the assistance of the said registrars in carrying into execution the provisions of this Act; and the said Secretary of State may at his discretion remove any registrar or other person so appointed as aforesaid; and upon any death, resignation, or other vacancy, may appoint other proper persons to be such registrars, clerks, and officers, respectively: provided always, that there shall be paid to the said registrars, clerks, and messengers, out of any moneys to be received by the said registrars by virtue of this Act, such salaries as shall be from time to time fixed and allowed by the Lord High Treasurer or Commissioners of Her Majesty's Treasury, who may also allow such reasonable travelling expenses as may have been incurred by any registrar, clerk, or messenger, in the performance of his duties under this Act, and such other reasonable expenses of putting and carrying this Act into execution, as the said Lord High Treasurer or Commissioners of Her Majesty's Treasury shall think fit.

2. And be it enacted, that all moneys received by the registrars aforesaid, in carrying this act into execution, shall be paid by them into the Bank of England, at such times and in such manner as the Secretary of State aforesaid shall direct, to the credit of the Lord High Treasurer or Commissioner of her Majesty's Treasury, and in the name of the "Medical Registration Fund of Great Britain and Ireland."

3. *Register of names and abode of medical practitioners to be kept.*—And be it enacted, that the several registrars shall, within thirty days after their appointment, and shall, from time to time, proceed to register, in books to be kept for that purpose, without any fee whatsoever, the name and place of abode, together with a description of the testimonials of every physician, surgeon, and apothecary, who shall apply to be registered, and who, prior to the passing of this act, shall have taken a degree in medicine in any English, Irish, or Scotch university, or who shall state his place of abode, and apply to be registered, and shall produce his diploma, certificate, or license, or shall produce a duly attested certificate, or such other proof as shall be satisfactory to the said registrars, of his having obtained a diploma, certificate, or license to practise as a physician, surgeon, or apothecary, dated prior to the passing of this act, and granted by any English, Irish, or Scotch college or hall, or any corporation, sole or aggregate, in England, Ireland, or Scotland, legally entitled to grant the same at the time of the *passing of this act*, and also to every person who shall apply for the same, and who was actually practising medicine in England and Wales prior to the first day of August one thousand eight hundred and fifteen, and who shall sign a declaration according to the form in schedule (A) to this act annexed, and also to every surgeon, and assistant-surgeon of the army and navy who shall apply for the same, and whose warrant of appointment bears date prior to the first day of August one thousand eight hundred and fifteen, and to every physician, surgeon, and apothecary, upon the payment of *two pounds*, who, *after the passing of this act*, shall take a degree in medicine as aforesaid, or produce a certificate, license, or diploma as aforesaid, dated subsequently to the *passing of this act*, and shall deliver to the said registrar a statement of his place of abode.

4. And be it enacted, that the several registrars shall issue certificates according to the form in schedule (B) to this act annexed, to every person who shall have been registered as aforesaid, and shall apply for the same, and shall state his then place of abode: provided always that the said registrars shall issue such certificates for that part of Great Britain and Ireland only for which they shall severally be appointed to act.

5. *Fee to registrar for his certificate.*—And be it enacted, that every person applying for such certificate shall, upon his application for such certificate, pay to the registrar a sum not exceeding five shillings, and such certificate shall bear date on the day on which the same shall be issued, and shall continue in force until the *thirty-first day of December one thousand eight hundred and forty-seven*, and no longer: provided always, that it shall be lawful for the said registrars, and they are hereby required, at any time on or before the fifteenth day of December in every subsequent year, upon the application of such persons as shall be then registered, to issue such certificates in like manner in all respects as aforesaid, subject to the payment of a sum not exceeding five shillings as aforesaid, which said certificates shall take effect from the day of the date thereof, and shall continue in force until the thirty-first day of December in the year next following that in which the same shall be granted, and no longer.

6. *Register of certificates to be kept.*—And be it enacted, that each of the said registrars shall duly record in a book every certificate which he shall issue as aforesaid, and in the month of January in every year shall cause to be printed a correct register, arranged alphabetically, of the names of all persons to whom he shall have so issued certificates during the year preceding the fifteenth day of December then last past, according to the provisions of this act, together with their places of abode, and a description of their qualification or qualifications, and such registers shall be respectively called “The Medical Register for England,” “The Medical Register for Ireland,” and “The Medical Register for Scotland,” and a printed copy of the register for the time being, so published as aforesaid, shall be evidence in all courts, and before all justices and others, that the persons therein specified have obtained a certificate according to the provisions of this act; and the absence of the name of any person from such printed copy shall be evidence, until the contrary be made to appear, that such person has not obtained a certificate according to this act; and copies of such medical registers shall be furnished by the respective registrars to every person who shall apply for the same, upon the payment of a sum not exceeding one shilling for each copy.

7. *Persons omitted in original register may obtain subsequent certificate upon application to registrar.*—And be it enacted, that if any person entitled by this act to obtain a certificate as aforesaid, whose name, or correct description, or abode does not appear in such medical register as aforesaid, shall at any time apply for a certificate to any of the registrars aforesaid, and shall prove to the satisfaction of such registrar either that he is a person whose name, through neglect or mistake, has been omitted from the medical register then current, or that he purposes commencing or resuming practice, or of changing his abode before the first day of January in the ensuing year, every such applicant shall be entitled to obtain from the registrar appointed for that part of the United Kingdom in which he resides, upon payment of *twenty shillings*, and sending his name and then place of abode, together with a description of his testimonials, a certificate as aforesaid, to take effect from the day of the date thereof, and to continue in force until the first day of January then next ensuing.

8. *Persons not possessing certificates prohibited from acting as medical practitioners in public offices and other situations.*—And be it enacted, that from and after the *first day of January, one thousand eight hundred and forty-seven*, no person who does not possess a certificate in force according to the provisions of this Act, shall be deemed capable of acting in any part of Great Britain or Ireland, in the capacity of a physician, surgeon, apothecary, surgeon-apothecary, or other medical officer in any hospital, infirmary, dispensary, lunatic or other asylum, lying-in-hospital, gaol, penitentiary, house of correction, house of industry, parochial or union workhouse or poorhouse, parish union or other public establishment or institution, or to any friendly or other society for affording mutual relief in sickness, infirmity, or old age; and wherever by law it is provided that any act shall be done by a physician, surgeon, apothecary, or medical or

surgical practitioner, by whatever name or title called, such provision shall be construed, after the *passing of this Act*, to mean a person possessing a certificate in force according to the provisions of this Act, and such persons only ; and the certificate or evidence of any person not possessing a certificate as aforesaid, given after the *passing of this Act*, shall not be received as the certificate or evidence of a physician, surgeon, or apothecary, or medical or surgical practitioner, in any court of law or equity, or in any matter or thing in which, by law or custom, the certificate or evidence of a physician, surgeon, apothecary, or medical or surgical practitioner, is or shall be required.

9. *Medical Practitioners exempted from serving on juries, and in the militia.*—And be it enacted, that every person who shall possess a certificate under the provisions of this Act, shall be exempt if he shall so desire, from being summoned or serving on all juries and inquests whatsoever, and from serving in the militia, all corporate, parochial, ward, hundred and township offices, and their names shall not be returned in any list of persons liable to serve in the militia, or in any such office as aforesaid, and no person shall be entitled to such exemption as aforesaid on the ground of being a physician, surgeon, or apothecary, who does not possess such certificate as aforesaid.

10. *For certain offences, names of Medical Practitioners to be erased from the Register.*—And be it enacted, that if any registered physician, surgeon, or apothecary, shall be convicted, in England or Ireland, of any felony, or in Scotland of any crime or offence inferring infamy or the punishment of death or transportation, or if it shall be found, by the judgment of any competent court, that any such physician, surgeon, or apothecary, shall have procured a certificate under this Act by any fraud or false pretence, or that any such physician, surgeon, or apothecary has wilfully and knowingly given any false statement, evidence, or certificate in any case in which by law the evidence or certificate of a physician, surgeon, or apothecary, is required, it shall be lawful for any registrar, on production before him of an office copy or extract of the conviction or judgment of the court, duly certified under the hand of the proper officer of the court, to cause the name of such physician, surgeon, or apothecary to be erased from the register ; and every person whose name shall have been so erased after such conviction or judgment as aforesaid, shall thereby forfeit and lose all the privileges of a registered physician, surgeon, or apothecary, as the case may be, and shall not be entitled then or thereafter to obtain such certificate as aforesaid.

11. *Penalty for obtaining Certificate by false representations.*—And be it enacted, that if any person shall wilfully procure or attempt to procure a certificate from any registrar, by making or producing, or causing to be made or produced, any false or fraudulent representation or declaration, either verbally or in writing, or shall by any false or fraudulent means whatsoever possess, obtain, use, or attempt to possess, obtain, or use any certificate as aforesaid, every such person so offending, and every person aiding and assisting him therein, shall, upon being convicted thereof, be adjudged guilty of a misdemeanour in England and Ireland, and in Scotland of a crime and offence, and thereupon it shall be lawful for the court before whom such offender shall be tried and convicted, to sentence such offender to be imprisoned, with or without hard labour, for any period of time not exceeding six calendar months.

12. *Penalty on unqualified persons acting or practising as Medical Officers.*—And be it enacted, that every person appointed after the *passing of this Act* to any medical or surgical office for which he is not qualified according to the provisions of this Act, and who shall act or practise in such office, shall, for every such offence, forfeit the sum of *Twenty* pounds, to be recovered by action of debt or information to be brought in any of Her Majesty's Courts of Record at Westminster, or in the Court of Exchequer in Scotland or in Dublin, within six calendar months next after the commission of the offence, in the name of Her Majesty's Attorney-General in England and Ireland, and of the Lord Advocate in Scotland.

13. *Interpretation Clause.*—And be it enacted, that the words “medicine” and “medical” when used in this Act shall also mean and include the words “surgery” “and surgical.”

SCHEDULES TO WHICH THIS ACT REFERS.

SCHEDULE (A.)

DECLARATION OF PERSONS claiming to be registered as APOTHECARIES upon the ground that they were in practice as Apothecaries previous to the 1st day of August 1815.

To the Medical Registrar for England.

I, [Samuel Baker,] residing at [6 Duke Street, Birmingham,] in the county of [Stafford,] hereby declare that I was practising as an Apothecary at [16 George Street, Hastings,] in the county of [Sussex,] previous to the 1st day of August 1815.

(Signed) [Samuel Baker.]

Dated this [6th] day of [October] 1846.

SCHEDULE (B.)

By virtue of the powers vested in me by an Act of Parliament passed in the tenth year of the reign of Her Majesty Queen Victoria, intituled, “An Act for the Registration of the legally-qualified Practitioners of Medicine in Great Britain and Ireland,” I hereby certify that

[James William Thomson,]
residing at [15 Ormond Street, Manchester,] in the [county of Lancashire,] has been registered according to the provisions of the said Act, as

A MEMBER OF THE FACULTY OF MEDICINE OF [ENGLAND;]

and that he is entitled to all the powers and privileges conferred by the said Act. This certificate will remain in force until the 31st day of December [1847,] and no longer.

(Signed) [Henry Brown.]
Medical Registrar for [England.]

Dated August 4, 1846.

* * As we go to press it is announced, that at the request of Sir G. Grey, Mr Wakley has postponed this bill, pledging himself to introduce it next session.

BOOKS RECEIVED.

In future, all Works received before the 20th of the Month will be regularly acknowledged.

- | | |
|--|---|
| 1. The Sanative Influence of Climate. By Sir James Clark, Bart., M.D., F.R.S., Physician in ordinary to the Queen and Prince Albert. Fourth edition. 12mo. London, 1846. | Madrid, Barcelona, and Cadiz, &c. 8vo. London, 1846. |
| 2. On the Antidotal Treatment of the Epidemic Cholera. By John Parkin, M.D., Honorary Fellow of the Royal Academies of Medicine and Surgery in | 3. Report of the Directors of the Montrose Lunatic Asylum, Infirmary and Dispensary, for 1845-46. |
| | 4. Sixteenth Annual Report of the Belfast District Asylum for the Insane Poor, for 1845-46. |

THE
MONTHLY JOURNAL
OF
MEDICAL SCIENCE.

No. LXX.

OCTOBER 1846.

No. 4. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Case of Sweating Sickness.* By JAMES A. LAWRIE,
M.D., Surgeon to the Glasgow Royal Infirmary, &c. &c.

(*Read before the Medico-Chirurgical Society of Glasgow.*)

THE following case I saw in consultation with Dr Stewart, by whose kind permission I am allowed to bring it to the notice of this meeting.

The patient was Mr S., aged about 60, a healthy, active, robust man for his years, but of late liable to biliary derangements. On Tuesday, April 28, 1846, one of these attacks appeared to be brought on by drinking bad porter while overheated and fatigued. He continued out of sorts during the week, and on Friday, May 1st, had severe pain around the umbilicus, followed by bilious vomiting. On Saturday the 2d, he was better, but very thirsty. (Had some purgative medicine). That night he slept comfortably till half-past one A.M. of Sunday, when he awoke in a most violent perspiration, which continued unchecked till six A.M. By that time, his night-dress, sheets, blankets, pillows, and part of the feather bed on which he lay, were literally dripping wet. I did not see them, not having visited the patient till the forenoon of that day, but Dr Stewart, who examined them carefully, assured me that the sheets in particular were as wet as if they had been dipt in the stream which flows in front of the gentleman's residence. At ten A.M. he had what his family described as a fit of ague, followed by cramps in his limbs, and a return of the intense pain of the abdomen; for which latter a large blister was applied. Dr Stewart and I found him, early in the forenoon, very weak and

restless. Pulse small and easily compressed; voice husky; choleric; hands bleached; cold perspiration, especially on head; countenance sunk; intense thirst, and desire for cold water; with great feeling of internal heat. In the afternoon all the symptoms were aggravated. Dr Stewart remained with him all night. The pulse became more and more feeble, and at last imperceptible at the wrist; the other symptoms increased in a corresponding ratio, with the addition of some vomiting, purging, and a tendency to delirium and slight stupor. From the time that I saw him up to this period, all medicines were omitted, and brandy and water, cold water, and beef-tea, were given as freely as they could be taken.

Monday, 4th May.—I saw him at nine A.M.; the pulse was then little more than perceptible—not countable at the wrist; it was quite distinct in the groin; constant restlessness and tossing; no urine. In a word, he had all the symptoms of a patient about to rally from an acute attack of cholera. Dislikes the brandy; indeed, refuses every thing but cold water. *To have cold water and ice or iced water, to any extent short of causing vomiting.* *Vesp.*—Rallying established; pulse quite countable, and of fair strength at wrist; stools dark-grey, and fetid; no urine; intense feeling of heat; urgent thirst; *rejoices* in the ice and iced water; *continue.*

Tuesday, May 5th.—Rallying completed; rose, walked across his bed-room, and shaved himself; pulse 80, of good strength; free discharge of darkish urine. *Vesp.*—Not so well; several bilious looking stools; vomiting of grass-green matter, mixed with mucus; temperature of surface good; some tendency to a stupid soporose state; thirst continues.

Wednesday, 6th.—Some sleep, and refreshed in the morning; at mid-day more sunk; refuses all nourishment, and lies on his back in a torpid condition, from which he can easily be roused, but immediately relapses into it, and takes no interest in anything. Severe vomiting continues; copious vesicular eruption on the nose and lips; pulse weaker.

Thursday, 7th.—Green vomiting and bilious stools continue; otherwise the same.

Friday, 8th.—Severe vomiting ceased; in other respects better. Tongue very foul.

It is unnecessary to continue the daily reports farther. Suffice it to say, that he lapsed into a mild but tedious secondary fever, from which he was not convalescent till the 10th of June.

This case seems to me to present several points of interest:—

1. The *amount* of perspiration. I have never met with any case in which the same amount of fluid was discharged by the skin in the same brief period.

2. Its immediate effect. I have never before seen collapse produced by perspiration. In this case it was complete, the patient

being for some time pulseless. It is worthy of remark, that the collapse was less sudden than in cases of acute cholera. It did not reach its acme till nearly twenty-four hours after the excessive perspiration had ceased.

3. The secondary symptoms. These were precisely those of some of the forms of the secondary fever of cholera, viz. the absence of urine for forty-eight hours; dark-grey stools, but more fetid; tendency to a sleepy stupor; and perhaps the most characteristic of all, the grass green vomiting. In connection with this last symptom, I may mention that I sent some of the matter vomited to Dr A. Buchanan, who took great interest in cholera cases in 1832, for the purpose of ascertaining if the opinions recently broached by Dr Golding Bird and others, as to these green discharges being blood, and not bile, are correct. I believe his impression is, that these opinions are erroneous.

4. This case throws some light on the nature and symptoms of cholera, and tends to confirm the opinions which I formed in 1832, viz. that the diagnostic and essential symptom of cholera was the rapid discharge through the internal mucous membranes of the serous part of the blood, and that all the subsequent symptoms were referable to the shock caused by the quantity of fluid lost, to the deteriorated condition of the blood in consequence of this discharge, and the injury done to the mucous membranes by its forced passage through them. If any doubt existed as to which of these conditions the green vomiting (choleric stage as Dr A. Buchanan styled it) is referable, this case should set it at rest, as showing that profuse serous discharge causing collapse is followed by inordinate secretions of green bile, whether the skin or the intestinal mucous membrane is the organ, through which the primary discharge flows.

5. I have asked myself, is this a sporadic example of the "*sudor Anglicanus*" "*sweating sickness*" of the 15th and 16th centuries, and I am inclined to reply in the affirmative. Dr Caius in his graphic account of this disease, dwells more on the theoretical than the practical part of the subject, and says little or nothing of the secondary symptoms. He maintains, however, that it was a fever, "*neque enim morbus iste sudor tantum, ut vulgus putat, sed febris,*" p. 18. The perspiration never exceeded twenty-four hours, "*sudor insequens, sed non excedens horas viginti quatuor,*" p. 17. The danger always extended over the same period, "*sed nemo * * * ante horas viginti quatuor * * * periculo liberatum se gloriari potuit,*" p. 10. Many of the symptoms were identical. The great heat, "*calebant primo, postea ardebant,*" p. 23. "*Sitis ingens, jactatio inquieta.*" "*Marcor et inexpugnabilis pene dormiendi necessitas.*" "*Cor, jecur atque stomachum male morbus habuit.*" "*Aliis nausea, aliis vomitus erat.*"

I find that (Forestus) (folio, p. 158) particularly insists on the abdominal pains and cramps, "*tensiones sub hypochondriis*" "*Dolores in renibus ac spina dorsi supra modum vehementes.*"

“*Contractiones pedum ac manuum.*” According to him the pulse was “*pulsus concisus,*” the urine, “*quibusdam licida et valde corrupta.*” He limits the duration of the perspirations to a shorter period than Caius, recovery or death taking place in five, ten, or twelve hours, few going on to twenty-four, “*nemo tamen ad horas viginti quatuor pervenerit.*”

ARTICLE II.—*Pisiform Lithic Concretions, occurring in a Case of Albuminuria.* By SPENCER THOMSON, M.D.

THE annexed drawings represent microscopic views of a series of uric acid deposits (the “pisiform lithic concretions” of Dr Prout¹), which occurred during the progress of a case of albuminuria, under the care of the writer.

The patient, a farm-servant, a stout muscular young man, æt. 21, of sanguine temperament, first applied upon the 24th of June of the present year. He attributed the commencement of his illness to cold taken six months previously, having got very wet, and dried his clothes upon him before a fire; at the time, he suffered from rigor and other pyrexial symptoms, and has never felt well since. He had been two months under treatment at the time of his application, but apparently no attention had been directed to the urinary affection, when first examined by the writer. He had been engaged for some days previously in mowing, during the extremely hot weather, perspiring profusely, and drinking plentifully of beer. The chief symptoms were, extreme debility; sleep broken and unrefreshing; mouth dry and disagreeable on waking; tongue posteriorly coated with thick white fur, anteriorly rather red, moist, papillæ prominent and broad; thirst constant; appetite very bad; great weariness of the lower limbs, more particularly after meals; bowels irregular; no particular complaint of pain; skin, when not perspiring from exertion, dry and hard; urine pale straw colour, acid, sp. gr. 1·025, the amount of albumen coagulated by heat or nitric acid, rendered it too solid to pour from the tube; breathing short, but chest sounded well all over; sounds and impulse of heart rather louder and stronger than natural; pulse 72. The patient was ordered at once to stop work, to wear flannel, to abstain from all stimulants, and put upon a regulated diet, chiefly farinaceous, with little or no fatty matter; warm baths every night for some time were resorted to; diaphoretics, alkaline salines, mild purgatives and alteratives were employed, along with two cuppings from the loins, followed by counter irritation; latterly mild tonics, serpentaria, tartrate of iron, uva ursi, &c. &c. were administered.

¹ Prout on Stomach and Renal Diseases, fourth edition, p. 193.

On first stopping work, the pulse fell to 56, and continued at that standard for some days; it then gradually rose to 72; the skin was very dry, but soon became moist under the warm bathing, and has continued so ever since, and the appetite was much improved. The only symptoms complained of during the treatment, directly referable to the urinary organs, were ardor urinæ during the continuance of uric acid secretion, and subsequently, aching in the groins, especially after exercise. At the present date, August 1, all symptoms of disease appreciable by the patient have disappeared; he eats, drinks, and sleeps well, feels strong and fit for work, to which, subject to regimen, he returned a week since. The urine, however, still remains coagulable, though not to the same extent as formerly; it is pale, clear, acid, sp. gr. 1.020, average quantity about three pints, occasionally deposits uric acid. The patient says his feet had always perspired very freely previous to this illness, they are now habitually dry.

The resemblance of the above case, in most of its features, to many others of albuminous urine renders comment unnecessary, except upon the peculiarities of the renal secretion. The sp. gr. 1.025 presented by the first specimen of urine examined, was doubtless owing to the loss by perspiration at the time, as, since then, 1.020 has almost uniformly been the density of the night's secretion, the daily quantity passed varying from forty-eight to fifty-six ounces. Notwithstanding the apparent abundance of albumen, it was evident that the above density was due to the presence of other constituents of the urine; for, after the separation of the former ingredient by heat and filtration, the density fell but one degree. Urea was present in good quantity; the uric acid, in the first specimens, was all precipitated spontaneously; by the addition of a stronger acid, not a single additional crystal was obtained; examination led to the belief that a large excess of hydrochloric acid was the cause of this precipitation. The urine, pale when passed, became much deepened in colour after standing a day or two. Decomposition was remarkably retarded; some of the urine kept for three weeks in an open vessel, at the end of that time, retained its acidity, and had not become in the least offensive;¹ healthy urine, under similar circumstances, becoming very offensive in forty-eight hours.

The first specimens of the pisiform uric or lithic acid concretions which were observed, presented to the naked eye the appearance of bright orange looking grains; under the microscope they appeared as delineated in figs. 1 and 2, the lustre being rather waxy; some, such as fig. 1 *a*, and fig. 2 *c*, approach very nearly the form of the usual rhombic crystal, others again, as fig. 2 *d*, represent the rounded form of the true concretion, all these latter encrusting

¹ The tendency to resist the usual progress of decomposition is common to urine depositing uric acid.

hair-like filaments. In a specimen of urine passed a few days after that, from which the above were taken, the concretions appeared to remain suspended by threads of mucus; on placing a collection of these under the microscope, they appeared as represented at fig. 3; concretions in various forms encrusted simple filaments, some of which were apparently cylindrical, others flat and twisted upon themselves, as represented at fig. 3, *a a a*; besides these simple filaments, however, there were numerous other compound penniform, apparently articulated filaments, as represented fig. 3, *b b b*—on these were no encrustations. Amid the earlier deposits, two species of animalculæ occurred rather abundantly, fig. 3 *a** and *b**; the first *a**, slow in motion, the body slightly opaque, and continued into a long transparent proboscis; the second, *b** oval in form, motion rapid, and presenting traces of internal organization, which probably a higher magnifying power would have rendered better defined. Fig. 4 represents a few more of the encrustations. After the appearance of the deposit represented at fig. 3, the uric acid gradually began to disappear, and to become more normal in its crystallisation; figs. 5 and 6, taken from successive specimens of deposit at a few days interval, show the gradual approach to the common form of uric acid crystal, represented at fig. 7, these last, very small and thin, having been deposited from urine passed only a day or two previous to the entire disappearance of the free acid. Fig. 2 *a* and *b* represent a large organic or cellular globule formed in serous urine.

Fig. 1.—Pisiform uric acid concretions.

Fig. 2.—Pisiform concretions, most of them on filaments.

c.—Irregular crystallization between two filaments.

a and *b*.—Organic cellular globules.

Fig. 3.—Pisiform and amorphous concretions mingled with compound filaments.

*a** and *b**.—Animalculæ.

Fig. 4.—Concretions on filaments.

Fig. 5.—Uric acid deposit, approaching normal condition.

Fig. 6.—Uric acid deposit, approaching to normal crystallization.

a.—Irregular crystalline mass of uric acid.

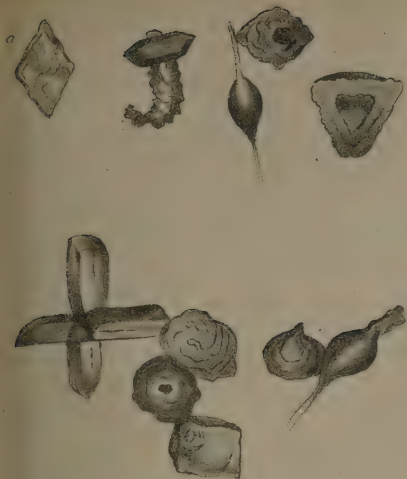
Fig. 7.—Normal form.

Not having met with any explanation of the origin of these pisiform concretions, the following, in the absence of direct proof, may be considered at least probable:—It appears that the true concretion is always formed upon one of the simple hair-like filaments; at least, they are so generally found connected, we may be allowed to suppose that those apparently disconnected have become detached accidentally. The concretions in question are said to accumulate largely in the pelvis of the kidney.¹ It is not irrational, then, to explain the cause of this accumulation, by the supposition, that these filaments, which serve as a nucleus,

¹ Prout, p. 195.

I.

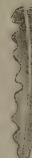
II.



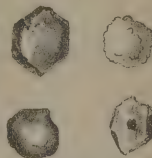
III.

x a

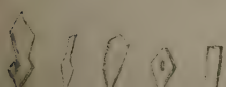
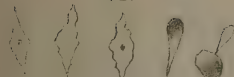
IV.



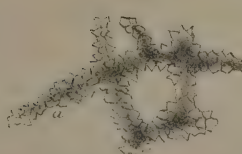
V.



VI.



VII.



have some attachment to the gland, and thus retain, for a certain time, the concretion formed upon them, which is meanwhile rounded by attrition and the constant washing of the urine. Respecting the compound filaments, I offer no explanation: they seemed, in the specimen in which they occurred, to be the cause of the suspension of the deposit in the urine.

Although Dr Prout describes these uric concretions as of frequent occurrence in serous urine, it is probable that they, and the consequent symptoms, were increased by the quantity of malt liquor which had been consumed. During hay and corn harvests, uric acid lithiasis is extremely common among the farm labourers in this part of England, in consequence of the large allowance of malt liquor, especially if the beer happens to be rather old and acid, or very new. The same disease, from the same cause, is of very common occurrence among the brewers' men of Burton-on-Trent.

Note.—The probable origin of the pisiform or concrete condition of uric acid, will, it is imagined, account for the great tendency to the formation of calculus which accompanies this form of excretion. It is evident that the retention of these concretions by their filaments, either in the pelvis of the kidney, or in the lower part of the ureters, must afford the greatest facility for the farther deposition of uric acid.

Haunton, near Burton-on-Trent,
August 2, 1846.

ARTICLE III.—*Practical Remarks on the Continued Fevers of Great Britain, and on the Generic Distinctions between Enteric Fever and Typhus.* By CHARLES RITCHIE, M.D., Glasgow. Physician to the Fever Hospital of the Glasgow Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Glasgow, September 1846.*¹)

THE following observations are divided into,—1. Those which detail the circumstances in which enteric fever and typhus agree; and, 2. Those which refer to the points of difference between them.

I. The points of agreement,—

1. They are similar in respect to their predisposing causes. Whatever depresses the vital powers, predisposes to either.

2. They attack the one equally with the other, on exposure to their respective exciting causes, every age and description of individual, and both, in certain circumstances, prevail as epidemics.

¹ See Proceedings of the Society, in Part 4th of this Number.

3. They have a certain general resemblance to each other in their ordinary phenomena. A condition of depression, followed by pyrexia and other consequences of the irritation of the nervous and organic systems, occurs in both. In both, also, there is a capability of being communicated by contact or fomites; in each there is a severe mortality, and, to a cursory observer, there is in both diseases, such an apparent resemblance in the necroscopical appearances as may easily suggest the notion, that they constitute modifications only of identical lesions.

4. There is often a striking correspondence in the particular symptoms of the two affections.

a. Thus, in typhus, which is as a general rule distinguished rather by the great disturbance of the cerebro-spinal system, than by violent commotion of the organs, unless it be in certain instances in which the heart, lungs, or both, are excited equally with the brain, the bowels occasionally suffer the greatest shock, and the nervous system is comparatively untouched; while, in enteric fever, in which the rule is, that the abdominal organs have thrown on them the main force of the morbid cause, and the brain is not affected intensely, except as a secondary result of the abdominal irritation in an advanced period of the disease, there are individual cases in which the intestinal lesion is marked by the early occurrence of violent cerebral disturbance. In both diseases, also, depraved sense of smell, of vision, of taste, and either intolerance of noise or deafness may exist, although the normal arrangement is to find such effects of the morbid poison on the nervous system, rather in typhus than in simple fever; while a red, or red and chopped tongue, an enlarged abdomen, painful and gurgling on pressure, and an ochre, turmeric, or peasoup appearance of the stools, which are ordinary marks of the disorder of the digestive system in enteric fever, are also occasionally present in typhus.

b. In regard, again, to the circulatory system, there is often in the two forms a similar community of the conditions peculiar to each. Thus, in typhus, which, whether in its formative or irritative stages, as really as in its subsiding and convalescing periods, is a disease essentially of debility, there is frequently in particular epidemics, or families, or individuals, a decidedly increased sthenic complexion in the symptoms; and in enteric fever on the contrary, which is normally a more inflammatory affection, the morbid phenomena are sometimes of a strikingly asthenic kind. It thus sometimes happens, that a case of typhus, instead of exhibiting in its irritative stage or period of reaction, a diminished impulse of the heart, a preponderance of the second cardiac sound, and an acute snapping character in both sounds, along with a compressible or soft pulse, which are the usual appearances, has its cardiac sounds either natural, as is the case in enteric fever, or from some accidental irritability or disease of the heart, they are augmented; and in the period of collapse or subsidence, again, when in typhus, the heart's

impulse and first sound are, in general, absent, both may yet, in individual instances, be found from the causes already stated, as strong as they normally are in the other form of fever. In this latter, on the other hand, sometimes from the depressing nature of the predisposing cause, such as want, fatigue, continued exposure to a cold damp atmosphere, or to animal or vegetable malaria, or at others, owing to the specific character of the exciting cause, as contagion, the use of decomposed food or drink, or the inhalation of putrid miasms, the disorder manifested by the circulating organs, partakes more of the character of that of typhus than of enteric fever occurring in a healthy person, from its ordinary cause, exposure to cold and wet.

c. In the respiratory system also, there is sometimes, in both fevers, a general identity in the pathological changes. Thus, in typhus, as early often as the fifth or sixth day, the engorgement of the capillaries, which in that disease is their universal and essential condition, usually gives rise in the lungs to harshness of the respiratory murmur, and as the disease proceeds, successively to bronchial wheezing, sonorous and crepitous respiration, followed in some bad cases, from the increased loss of vital power in the capillaries, by impermeability of the most dependent portions of the lungs, and in this way simulating every degree of bronchitis and pneumonia. In enteric fever, the same disordered states obtain, but in more intense forms, and modified from the pure phlegmasia only by the diminished fibrine and red globules contained in the blood in it, as compared with that of bronchitis and pneumonia; and, perhaps also, by the primary affection of the nervous centres, which distinguishes fever from exclusively local inflammations.

Now, in some cases of typhus—as when it is engrafted on a permanently varicose condition of the pulmonary capillaries, as in emphysema of the lungs, dilatation of the heart, or general adhesions of the pleura to the walls of the thorax—the disturbance of the respiratory functions is often greatly increased; and in enteric fever, on the contrary, the lungs are sometimes either scarcely affected, or the physical signs are more healthy, than in the average of typhus cases.

d. In the digestive organs, again, there is often a striking identity in the symptoms. Diarrhœa, deep seated abdominal pain, tympanitic distention of the intestines, or gamboge-coloured stools, which are normally the accompaniments of enteric fever, are frequently all present in typhus; and, on the contrary, olive-coloured or dark dejections, and constipation, sometimes to a great degree—the faecal matter actually performing the function of a plug in the walls of the perforated intestine—may exist in enteric fever, and that also without pain, or other rational sign to indicate such a lesion.

e. In regard to the cutaneous tissue also, the characteristic features of each fever are sometimes partaken of by both indiffer-

ently. Thus, there is generally, in enteric fever, a papular eruption which resembles, in some particulars, the sparser and scantier examples of the typhus efflorescence; and in typhus, the sudamina and desquamation of the cuticle, which are more specially distinctive of enteric fever, are often very strongly marked. In both affections, should there be much engorgement of the bronchial membrane, there will be circumscribed redness of one, and, more rarely, of both cheeks; and often, from the same cause, a lurid appearance of the neck and ears. Vibices and bed sores also are common to both diseases.

5. The complications and consecutive effects of the two fevers are in many respects alike. And first, in regard to complications, there may be,—in the nervous system, convulsions or paralysis;—in the respiratory, aphonia, laryngitis, œdema of the glottis, pleuritis, and emphysema, or a state resembling pneumonia, and ending in suppuration, or in gangrene; in the circulatory, hemorrhage from the lungs, the intestines, the nose, the gums, or the urinary organs; and inflammation in the pericardium, the endocardium, or the veins; while in the digestive, there may be hiccup, bilious vomiting, jaundice; and in the cellular tissue, suppurations in the ears, the coverings of the parotids, and other glands of the neck, the pharynx, the groins; in the fibrous tissue, inflammation and effusion in the joints, and ulceration of the cornea; and in the skin, erysipelas and bullæ indifferently in either form of fever; and in both, all or any of the complications may be continued in the progress of the case, as consecutive affections or sequelæ, either alone or unitedly with others, as loss of memory, fatuity, insanity, blindness, dropsy of some of the cavities, or of the cellular texture, phthisis, and suppurations in the liver or spleen.

6th, and lastly, The two diseases resemble each other in a particular which indicates, as strongly as many of those points of dissimilarity do which I am about to notice, the truly generic distinction which subsists between them. They mutually succeed one another. Patients who have successfully struggled through the long and generally varied course of well-marked enteric fever, often, on exposure to the contagion of typhus during convalescence, become affected with the symptoms peculiar to it, and exhibit as well-developed and typical examples of this fever, as they did formerly of the other; while, again, individuals recovering from typhus, are sometimes, on exposure to cold and wet, seized with enteric fever.

II. Points of distinction between enteric and typhus fever.

1. They differ in their ordinary exciting cause. Of a hundred cases of typhus, 80 per cent. will be traceable to contagion; while of enteric fever, a proportion equal perhaps to 90 per cent. will as readily be referrible to exposure to a chill.

2. Unless under circumstances of strong predisposition, or of

great intenseness of the contagious principle, typhus is seldom developed before the second week after exposure; but, in enteric fever, the commencement of morbid phenomena is usually quite consecutive on the application of cold and wet, its exciting causes.

3. The *modus operandi* of the exciting cause, and the procession of pathological conditions which give rise successively to the series of symptoms in each are different. It would be preposterous to assert that the contagion of typhus exerts its first morbid influence on the cutaneous surface; and it is not less so to deny that the atmospheric agencies which are the usual, though not exclusive, cause of enteric fever do so. The poisonous miasm from the living human body which excites typhus, operates on the nervous centres through contact with the ganglionic system in the lungs and stomach, and through the blood. It does so as a direct sedative; and, when its quantity is great, or its virulence undiluted, vital depression may be its only obvious consequence. In the more usual degrees of exposure, the animal powers, after sustaining a certain direct debilitating influence, are excited to a sanative effort. The tumultuary disturbance of all the organs to which this leads, at once occasions a deceptive appearance of inflammatory action; and, by aggravating, according to its violence, the debility which was previously present, insures the supervention of a state of collapse. In this stage, there is diminished vital power and arterial action, united with accumulation of blood in the venous system, and hence arises a new train of effects on the brain, nerves, and venous capillaries, which, but for the element of periodicity, which tends to control healthfully every fever, would prove invariably fatal.

In enteric fever, again, the morbid cause may reach the cerebro-spinal axis either by the same course as that of typhus, or by the peripheral cutaneous branches of that system. The irritation in this latter case of the brain and medulla, and reflexly of the organs, is immediate, and the constitutional disturbance thus raised, while it often closely simulates the corresponding stage in typhus, has this generic distinction, that instead of terminating from the sixth to the tenth or twelfth day in vital collapse and venous congestion, it is at the same dates sometimes succeeded by, and at others it is associated with the maximum development previous to ulceration, of follicular inflammation of the ileum, and often of the other intestines large and small. And from this period the pathological agencies to be feared are, not the accumulation of black blood in the veins of the brain, impeding all the functions of organic life and especially that of respiration, and the stagnation of all the peripheral veins, oppressing and often overpowering the heart, which are the noxious conditions to be resisted in the last stage of typhus, but simply the direct influence on the organic and other nerves, of the ulcerations of the intestines, and, should this be survived, the chance of hemorrhage or of perforation of the walls of the bowels.

4. The general sequence of phenomena, and the relative propor-

tions to one another of the various morbid conditions which constitute the two affections respectively, are different in each.

In typhus there is, after the reception of the poison, a variable period of incubation, distinguished by an impairment of all the functions, which is succeeded by about seven days of reaction, followed by about another week of subsidence or collapse, which again terminates, either in a similar period of convalescence or of accumulated complication.

In enteric fever, on the other hand, irritation of the cerebro-spinal system and of the intestines follow the application of the exciting cause, without the intervention of any distinct formative stage. The irritative or tumultuous stage of enteric fever is its true initiatory stage, while in typhus this is constituted by a condition of depressed and diminished action. Neither is there any precision in the succession in enteric fever of a period of collapse to that of reaction, such as is observed in typhus, and when any approach to this does occur, the asthenia is far from being of that unmixed kind attended by sopor which is common in that affection, but is ordinarily counteracted by the local inflammatory complications, and the patient can commonly be aroused from it with comparative ease. The complexion of the case also is more varied by perceptible remissions and exacerbations than one of typhus would; and the period of crisis, instead of happening on the fourteenth day, as is the rule in the latter fever, rarely shows itself before the twenty-first, and more generally later. Its complications also are more numerous, and instead of requiring a curriculum of a month only for the completion of all its stages, which is about the average in typhus, this is more usually in enteric fever extended to three months.

5. The character of the affections of the various organs, and the specialties of particular symptoms are also different in the two diseases. As in

A. *The cerebro-spinal system.* There is a primary and a secondary disturbance of this system in both diseases. The former produced by the immediate exciting cause at the onset of each affection; the latter, in typhus during the subsidence of the fever, through the agency of an excess of carbonized blood in the brain, and in enteric fever, by that of the reflex influence on the nervous masses of the ulcerations of the intestines. The head, back, and limb aches, the tinnitus aurium, vertigo, and morbid sensibility of the nerves of sensation, particularly of the skin, which accompany the first lesion of the nervous system in both complaints; and the deafness, stupor, delirium, dorsal decubitus, immobility and sense of load in the body, guttural or snoring breathing, from relaxation of the velum, inability to swallow, from palsy of the œsophagus, and involuntary excretions from a parallel state of the sphincters, which are added in the second, are all much more frequent in typhus than in simple fever. The eye in the latter disease has in the stage of excitement, a remark-

able, shining, intelligent brightness, and in that of subsidence, the expression of perfect intelligence is blended with one of exhaustion, suffering, and mental depression. In typhus, again, the eyes soon acquire a look as if their axis of vision were not equal, the pupil is more frequently dilated, and the look of intelligence is exchanged for one of drunkenness.

B. *Circulatory system.* In typhus, during the irritative stage, the heart's action is quickened merely, and its impulse against the ribs may be even greater than natural; but as this stage declines, the heart's impulse in normal cases disappears, the sounds become sharper than before, the diastolic begins to preponderate, and the systolic to be extinguished, first at the base, and finally at the apex. Corresponding with these changes in the heart, the pulse is first accelerated only, and perhaps sharp, then soft, compressible, easily arrested, and, lastly, less frequent, it may be, than the heart's beats. The carotids, also, may at the beginning be seen pulsating strongly, and as the disease proceeds, their action cannot be perceived even with the stethoscope. The femoral arteries, again, will at the outset of typhus, on being covered by a stethoscope at the groins, communicate a bruit of nearly natural duration; as the debility advances, the length of the bruit lessens, till in the full collapse, it ceases to be perceived. Again, in the stage of vascular excitement of typhus, the capillary circulation partakes of the pervading over-action. The minute vessels of the conjunctivæ, lips, and inner surface of the mouth, and of the skin, are distended with arterial blood, and precisely to the degree that the heart's action fails, and gives occasion to the successive changes in the large vessels now mentioned, this florid condition of the cutaneous periphery, gives place to a dark, leaden, livid hue, indicative of venous congestion.

Should it happen in this state of the heart and blood vessels, that a local inflammation, as of the brain, or joints, or pleura arises, it will immediately be indicated by a return of the systolic sound, and of most of the other phenomena of the irritative stage. There will be a blending of the physical signs of the irritative and collapsive periods of the fever, proportioned pretty closely to the severity of the complication. Now, the state of circulation which occurs in such an arrangement of matters as this, is its normal type in enteric fever. There is usually a persistence of a measure of the character which the circulation exhibits in the early stage of both fevers, through every stage of the enteric.

I have already referred to most of the distinctions presented by C. the respiratory, and D. the digestive systems in the two diseases. Perhaps I might add in respect to the latter, that in enteric fever the saliva is more uniformly found acid, and the mouth free from sordes, than in typhus; and that in the latter, the bile is generally secreted in smaller quantity, and is of a darker colour and more viscid, than in enteric fever; and that as a necessary consequence,

the stools are of a darker colour, and the skin and eyes freer of an icteroid hue in the former, than in the latter complaint.

E. *In the urinary system* the state of the urine is very similar in the irritative stage of both forms, unless that, as I suppose, I have observed, that in enteric fever it is more intensely ammoniacal a few hours after it is voided, than in typhus. The sp. gr. in both complaints at their commencement, varies from 1016· to 1030· or more; but while in typhus this is invariably succeeded in the first few days after the crisis, by the discharge of urine, which is sometimes of as low, a sp. gr. as 1006· or 1004·; in enteric fever during the parallel days, and onward to the 30th and 40th days, with occasional days, when the patient having a remission of the fever, the elimination of animal and saline matters by the kidneys is less, the sp. gr. continues very steadily as great as it was in the irritative stage.

F. *In the adipose tissue*, the permanently high sp. gr. of the urine and the diarrhœa unitedly occasion more rapid absorption and remarkable emaciation in enteric fever than in typhus. Accordingly, while in the latter the features are tumid, and the integuments covering the limbs replete with fat, even when the patient perhaps is pulseless or moribund, the skin of the face in the former may generally be seen tightly clasped over the bones, and that of the limbs loose, wrinkled, and capable of being gathered up into deep folds, at even an early period of the disease.

G. *The cutaneous tissue.* The elimination of lactic acid from the skin is more permanent and distinct in enteric fever than in typhus. The skin also acquires a very peculiar smooth satiny feel, and sudamina are more profuse, and desquamation more copious and remarkable in this disease than in the other. The cutaneous eruption also in the two affections is different. In typhus the rash is the crowning circumstance of the irritative stage, and I presume depends on the irritation of the nervous centres by the contagious principle. Its usual form is that of a roseolous, or of a rubeoloid efflorescence, or of florid macules on the level of the cutis; and its eruption varies from the 3d to the 10th day, although the 6th is that which is most common. In enteric fever the rash is not so common as in typhus. There are cases of typhus, just as there are of small-pox, in which the macules are very scanty, and it is theoretically possible, that an instance might arise in which they shall even be apparently absent; but it is yet certain that typhus is a true exantheme, and subject to all the laws which govern this order of diseases. In enteric fever, however, the eruption is not essential, and when it does appear, it differs in many important particulars from that of typhus. It consists of insulated, elevated, florid, or rose-coloured papules, varying in size from the bulk of a mustard seed to that of a barley-corn. They arise first on the abdomen or loins, and then spread to the thorax and inner aspects of the limbs. They are often not more than from six to twelve in

number, and when most numerous, they can with a little industry be counted. They come out later than the typhus efflorescence; generally about the 9th or 10th day, and often in successive crops, each lasting about three or four days, on sometimes to the third week. Their appearance corresponds in point of time not with the cerebro-spinal irritation, as is the case with the typhus exantheme, but with the diarrhœa, and, most probably, with the inflammatory stage of the diseased intestinal follicles, and their repetition is synchronous perhaps with the eruption of successive crops of these inflamed mucous glands. In this view another generic distinction between this form of simple continued fever and typhus is, that the papules which frequently form one of its symptoms, instead of having a general origin in the disturbance by the contagion of the nervous system, as has been presumed to be the fact with regard to the macular rash of the latter disease, are excited by irritation of the roots of some of the cutaneous nerves, reflected from the inflamed intestinal glands, precisely as I have seen happen from the lungs, in pneumonia and other diseases of the lungs, and also in certain instances of irritation of the kidneys.

There is another morbid change in the skin, which is met with sometimes in very protracted instances of typhus, but which is very uniform in enteric fever, particularly with young persons. I refer to numerous *lineæ albicantes* in the vicinity of the patellæ, and also of the trochanters. These are as remarkable often as the appearances of the same name on the abdomen and mammæ of recently pregnant women. They have the same anatomical structure, and are, like them, indelible. In regard to their cause, when they are situated in parts exposed to pressure, this may be presumed to produce them; but when they are found on the anterior aspect of the thighs, immediately superior to the patellæ, which is their most usual situation, it cannot explain their formation. In such cases they may be dependent on the strain on the cutis of the protracted decubitus and flexion of the joints, which are so common in enteric fever, as distinguished from typhus.

Another circumstance connected with the skin has been much insisted on. The mouse smell of enteric, and the ammoniacal of typhus patients. When the symptoms of typhus are acute, there often is more or less copious perspiration, frequently having a pungent smell, but the same may be true of the irritative stage of enteric fever. After the tumultuous stage of this latter form has passed, however, and the skin is dry and imperspirable, there is a leathery odour exhaled by the patient, very distinct from that of which I have spoken, but which I have also detected in convalescent typhus cases. I apprehend that this odour is rather an animal than a pathological one, and that its source is the sebaceous follicles; but the point of importance to the inquiry on hand, is, that at the period of crisis in typhus, when the patient is often moist with ammoniacal perspiration, the enteric patient is at the same moment

lying with a dry, satiny skin, and a much more moderate amount of fever, far from the expectation of a crisis, and exhaling the leathery odour in question.

H. *Sexual organs*.—The only fact connected with this branch of the subject to which I would refer is, that pregnancy, in otherwise healthy females, promotes a favourable termination in typhus, but that it is not fitted to prove equally advantageous in enteric fever. The tone of the system is pitched higher in the gravid than in the unimpregnated female; and during typhus, the heart's sounds in such are greatly more preserved, and the necessity for stimulus less than in the non-gravid. In enteric fever there are local inflammations present, and the chances of a pregnant patient passing favourably through it are not greater than they would, in similar circumstances, be in dysentery.

6. Relapses never take place in typhus, and they are extremely common in enteric fever. A patient in typhus may get the crisis, again become ill, and even die after his convalescence has been well advanced; but it will be from the accession of some new disease, and not from a return of the fever. A second attack of measles or scarlatina, in direct succession with the first, would be quite as probable as two consecutive revolutions of the phenomena of typhus fever in the same patient. But in enteric fever there may be several such relapses, and each characterised by the same pathological circumstances with the original malady.

7. The contagious properties of enteric fever are out of all proportion less than those of typhus. I have seen it twice lay hold of all the members of a large family; not simultaneously only—which proves nothing—but in single succession. This is the amount of my remembered experience, however, on this subject; and its contrast, with what could easily be said on the same point in respect to typhus, is very obvious.

8. The necroscopical appearances in the two fevers differ. In typhus you may open many bodies, and your results will be little more than of a negative kind. Venous congestion, œdema and softening of the tissues, particularly softening of the muscular, include all that is found. The intestines may be more than usually vascular and soft, as may also be the spleen, the brain, the bronchial membrane, the lungs, or other organs; and the solitary and elliptical follicles of the bowels may be enlarged, more or less congested, and even in some places deprived of their villous coat; and here and there in the intestines, and also in the cellular tissue elsewhere, deposits of florid blood may be observed; but these exhaust the subject. The affection of the glands of the intestines, in particular, is never greater than is often found in small-pox, scarlatina, and other acute diseases. In enteric fever, on the contrary, besides the changes undergone by the lungs—which are more allied to those of inflammation than anything which is seen in deaths from typhus before its crisis—and those in the liver and spleen, which are very

similar to the corresponding lesions in typhus, the whole tract of the digestive tube in some cases, in others large and diversified portions of it, and in all the ileum and cæcum, are the seat of an inflammatory, organized, fleshy enlargement, or of ulceration and sloughing out, of the intestinal follicles, attended sometimes by perforation of the parts and peritonitis. Most of these lesions are found in enteric fever often at the end of the first week, and they have no parallel in anything observable in typhus, at any date, however protracted.

9. And lastly, The most suitable mode of treatment in the two diseases respectively, is entirely different.

In typhus the general indication is to nurse the vital powers. This is done, 1st, during the formative stage, by early confinement to bed, and by a light cordial regimen; 2d, In the tumultuary or irritative stage, by such means as are fitted to moderate the nervous excitement, and increased vascular action, such as the gentlest laxatives, small doses of opium mixed with ipecacuan, tartrate of antimony, or acetate of ammonia, tepid sponging of the general surface, cold to the head, tepid or warm foot-baths, mild or cooling drinks, and farinaceous food. 3d, In the stage of subsidence or collapse, by sustaining the heart's action, in proportion as it fails, with wine internally, and with the carefully maintained use externally, of warm fomentations to the trunk and limbs, aided in bad cases by ardent spirit added to the wine, and by more or less mustard, to the fomentations. 4th, In the stage of complication, or of consecutive local disease, by modifications in the treatment now described, and by the addition of other appliances, according to the organ affected, the severity of the lesion, and the state of the strength.

In enteric fever, again, the chief indication is to destroy the inflammatory action in the follicles of the intestines, and in the lungs, when it exists there, consistently with a due regard to the irritation of the cerebro-spinal axis, and the loss of fibrine, and of red globules by the blood, which distinguish this disease from simple inflammation. This is to be done, 1st, by restoring the circulation and secretion of the skin by the warm-bath, and a flannel underdress; 2d, by detraction of blood by cupping or leeches from the abdomen or loins; 3d, by blisters, and afterwards constant warm fomentations to the abdomen; 4th, by the steady use of opium, united with ipecacuan, borax, and chalk, with or without catechu, and in doses proportioned to the severity of the diarrhœa; or, where this symptom resists these means, and the bronchitis is not acute, by the addition to the opium of acetate of lead; 5th, by a strictly farinaceous or a milk diet; 6th, besides these modes of fulfilling the indication mentioned, it is necessary to support the strength, in advanced stages, to the extent that the bronchitis does not prevent, by the use of small quantities of wine. Pneumonia is to be met by

mercurial frictions externally, and by the hydrargyrum c. creta internally; and hemorrhage from the bowels, by super-acetate of lead, and renewed blisters to the abdomen; or, when the fever of pneumonia forbids the employment of the acetate of lead, by the use of turpentine.

ARTICLE IV.—*Observations on the Case of the Soldier White, whose Death took place some time after the infliction of Punishment by Flogging.* By Sir GEORGE BALLINGALL, M.D., F.R.S.E., Professor of Military Surgery in the University of Edinburgh, &c.

[We had proposed to give in the Review Department of the present Number, some notice of the conflicting medical evidence in the Hounslow case; but, in the meantime, the following communication being received in the form of a letter addressed to the Editors, we have suppressed our review, considering that Sir G. Ballingall's observations, from the position he holds, and the experience he has had in such matters, must be much more valuable to our readers than any thing we could have offered.]

I HAVE repeatedly been asked my opinion, both by professional men and others, of the case of the dragoon who died lately in the cavalry barracks at Hounslow, and of the medical evidence given before the coroner's inquest in that unfortunate case; and I have been urged, as a matter of duty, to state the result of my experience as bearing upon a case in which the public feeling has been so intensely excited.

I have been slow to yield to these solicitations, and it is not without some reluctance that I do so now. I feel, that although the public excitement has in some measure exhausted itself in reference to the case at Hounslow, many men are yet but ill prepared to give an impartial hearing to one who is in any way, even although remotely, connected with the medical department of the army, and who, in his younger days, was too much familiarised with those scenes of horror which have now, fortunately for all parties, become matter of history. There is another consideration which I am, perhaps, scarcely entitled to mention, because it is more personal, and therefore, less relevant. Writing here, where I am seeking, in the retirement of the country, an improvement of my health preparatory to the duties of the winter, and debarred from access to books and papers which I could have wished to consult, I enter upon the subject under great disadvantages.

As to the case of the soldier White, of the 7th hussars, after the most mature consideration, I can only look upon it as one of thoracic inflammation, supervening, from atmospheric changes, in the case of an individual who had recently been subjected to corporal punishment;—not necessarily connected with that punishment, except

in so far that I hold every man who may have undergone such punishment, and who may have been, in consequence, confined to hospital, to be in a condition which renders him more than usually susceptible of morbid influences, and particularly of those arising from atmospheric causes.

On the evidence given by Mr Wilson, as to the very peculiar state in which he found the deep-seated muscles of the back, I refrain from comment; for this simple reason, that his views are to me not only novel, but in a great measure unintelligible.

There is, however, one assertion in this evidence, which I am disposed to question, and which I have not seen noticed in any of the numerous comments which have been made upon it. It is alleged that the morbid appearances observed within the thorax, in the case of White, are those "uniformly observed in such cases." From the manner in which I have seen this allegation stated, and from the pains taken to assimilate this case in all respects to cases of burn, I am at a loss to know whether this uniformity is meant to apply to the morbid appearances in cases of death from burning, or from corporal punishment. If to the former, I would observe, that the parallel between the effects of burns and of corporal punishment has been pushed much too far.

In the opinion that the thoracic cavity is, in this country at least, most liable to become the seat of morbid alteration and effusion, in cases of death from burns, my own observation leads me to concur; although not in the proportion of cases stated by the Coroner, on the authority of Mr Quain. That the other great cavities are, in such cases, not unfrequently the seat of morbid congestion and effusion, may be seen from what I have stated upon this point in my "Outlines of Military Surgery," 3d edition, p. 137. The truth I believe to be, that here, as in many other cases, the weak part will go to the wall; and that whenever there is a predisposition to disease in any of the great cavities, whether from accidental circumstances, or from constitutional tendency, there, in all probability, will the morbid appearances be found. But I have said that the analogy between the effects of burns and of punishments, has been pushed too far; and this for the following reasons:—In the first place, we have no instances of death from burns, when the injury is confined to so limited a surface as that involved in the ordinary mode of inflicting corporal punishment. In the next place, it does not appear that it was the state of the skin, but of the deep-seated muscles, which attracted attention in the case in question, and to which the fatal result is attributed. The only circumstances which are dwelt upon regarding the skin, are its complete cicatrization, and its removal from the body some days previously to Mr Wilson's inspection, a circumstance, one would suppose, adding much to his difficulty in speaking with so much confidence and precision, as to the morbid change of the muscles, whether superficial or deep-seated.

If the alleged uniformity of appearances is meant to apply to cases of death, in consequence of corporal punishment, I would ask, where is the evidence? Although it has been my duty to study this subject, from the very commencement of my professional career, and my duty to lecture upon it annually for the last four-and-twenty years, I confess myself still in want of information upon this point. My personal experience, in this matter, has indeed been much too ample. I have been called upon to witness the infliction, or to conduct the treatment, of nearly 200 cases of corporal punishment, and in no one of these, so far as my recollection serves me, has there been any prominent or dangerous symptoms of thoracic inflammation. I have not now the means of referring to several cases in my possession, but some of those which I have personally witnessed are too deeply, and too painfully, impressed upon my mind to run any risk of mistake in quoting them. In one of these, where death followed in a few weeks after the infliction of corporal punishment, the patient was carried off by *dysentery*. In another, where the patient's life was brought into the most imminent hazard, this occurred from *hospital gangrene*, the patient being one of seventeen punished men lying in one ward, several of them affected with this formidable disease. In a more recent case, that of a marine of the Woolwich division, a few years ago, where the death was obviously and avowedly the result of a limited punishment, it occurred from *tetanus*. I may further advert to numerous conversations which I have held with army and navy surgeons attending my lectures, who have been induced to give me the results of their experience in regard to punishments. None of these lead to the inference, that inflammation of the thoracic viscera is a common source of danger after corporal punishment. If it is alleged to be so, I think myself entitled to ask again, where is the evidence? I pause for a reply. It is to profuse suppuration, to sloughing, or to hospital gangrene, that I have been accustomed to look as the sources of danger in cases of severe punishment. If this is not so, I have been propagating error for a series of years.

Mr Wilson's deserved reputation, as an anatomist, will make it appear, in the eyes of many, a piece of unpardonable presumption in me to question thus freely the opinion of one who has had the opportunity of dissecting some 500 bodies; I feel it, therefore, necessary to state that, from the time I became assistant to an eminent teacher of anatomy, the late Dr Barclay, up to the present date,—a period of nearly four-and-forty years,—I have dissected, or witnessed the dissection of a similar number, most of these dissections undertaken for the sole purpose of investigating the seats of disease; but this does not enable me to hazard an opinion as to the frequency of the connexion between corporal punishment and thoracic inflammation.

The persevering attempts which have been made to connect the death of the poor man White, with the punishment which he

underwent, as cause and effect, remind me very forcibly of an occurrence in our university, when I first became a pupil of it, soon after the commencement of the present century. My late distinguished colleague, Sir John Leslie, then a candidate for the professorship of mathematics, was severely censured and strenuously opposed, for having asserted in his writings that the only relation which we know between cause and effect, is that of "a constant and invariable sequence." Now, assuming for the present the accuracy of the learned professor's position, I make bold to say, that no two circumstances are less obviously connected, as cause and effect, than punishment and pleurisy, no two cases in which "a constant and invariable sequence" is less clearly established, than between the infliction of punishment and inflammation of the chest.

Upon the general question of corporal punishment, and without reference to the particular case which has given rise to the foregoing observations, I have elsewhere stated facts which, if duly weighed, are, in my opinion, more calculated to lead to the abolition of corporal punishments, than most of those which have been recently urged. First, That "in a great proportion, if not in a majority, of cases, when death has occurred, it has been from punishments of comparatively limited extent." And, secondly, That "those individuals who are most likely to render themselves amenable to corporal punishment, are very frequently the least able to bear it." Here, the admirable maxim laid down by Montesquieu, in the "Spirit of Laws," that crimes should be punished with the least of *real* and the most of *seeming* severity, is, in its application to individual cases, sometimes fearfully reversed. I have too often seen what was considered, and what was intended to be, the lighter punishment, turn out to be the more severe. The uncertain results of such punishments, so well urged by the coroner, when put upon his defence in the House of Commons, is, in my opinion, one of the most cogent reasons which can possibly be adduced against them; but let us be careful not to urge even this most legitimate argument to an extent calculated to impair its validity. When it is alleged that a man may die from the infliction of a single lash, so may it be alleged that he may die from cutting his corns, or paring his nails; the latter event, judging from past experience, is more likely to occur than the former.

The force of such arguments as those which I have adduced, will neither be enhanced nor invalidated by any futile attempt to asperse the character, or to question the attainments, of the medical officers of the army and navy. Surely such arguments may be urged without observations calculated to affect the discipline of a distinguished regiment, to expose its commanding officer to public odium, or its surgeon to the censure or contempt of his profession. That Dr Warren has suffered much mental anxiety and distress from circumstances connected with the unfortunate case in his regiment, I have reason to know, although I do not see a

shadow of blame which can be attached to him. I shudder to think how often a similar misfortune might have befallen myself. That Colonel Whyte and Dr Warren have escaped a burst of popular outrage, considering the attempts so unjustly made to criminate them, is to me a matter of some surprise. In this respect they have been more fortunate than their neighbours. I was myself one of a party of officers who were stoned by the populace at Nottingham, when returning to our quarters after having been obliged, in the fulfilment of our duty, to witness the punishment of a recruiting sergeant, who had taken the liberty of deserting with the public money in his possession.

Upon the present, as upon former occasions, when discussing the subject of punishments, I have confined myself to professional views of the question, in conformity with a principle which I have always inculcated upon my pupils, that their opinions will meet with most respect, and will prove most influential when they are rigidly confined to matters specially within their own province, and not forced obtrusively or offensively into the province of the soldier or the statesman. I have been slow to give credit or currency to those harrowing tales which are made to reflect discredit upon my profession, and which are now in a great measure foreign to the question, inasmuch as men are no longer contending against the abuse of corporal punishment which formerly existed, but advocating its total abolition. We have been told by the veteran chief at the head of the army, that he hopes to live to see the day when such punishments will be altogether abrogated. In this hope I am sure that the medical officers of the army and navy will most cordially join. No class of men can possibly be more interested in its accomplishment.

Altamont, Perthshire, 14th September 1846.

ARTICLE V.—*On the Relations which Physiology and Pathology bear to Chemistry and Physics, and the mode of Investigation to be pursued in these Sciences.* By JUSTUS LIEBIG.

(Translated for this Journal from the *Deutsche Vierteljahrschrift*, 1846. Heft. iii. No. 35.)

THE DEVELOPMENT OF NATURAL SCIENCES.

THE history of science shows, that at its origin, each department of physics consisted of nothing else but a series of observations and experiences possessing no demonstrable connexion with each other.

SPECIAL NATURAL LAWS.

Every advance was made by the discovery of new facts, by which two or more of the experiences formerly attained could be brought into connexion with one another. Mankind arrived first at special laws, which included within themselves a certain number of natural phenomena, and, subsequently, at general laws, or what is the same thing, came to express, with certainty, the dependence or connexion between a larger or smaller number of experiences.

GENERAL NATURAL LAWS.

Many departments of physics, such for example as mechanics, hydrostatics, optics, music, and the science of caloric, rose to the rank of abstract sciences, because, by a series of conclusions drawn from our knowledge of them, we have been enabled to reduce the phenomena of motion, sound, the atmosphere, and caloric, to certain truths, or to render the number of doubtful facts exceedingly small. By these not only have all the discoveries already made become linked together, but the same truths also embrace within their limits all things yet discoverable; so that for the necessary and proper explanation of new phenomena or experiences, any new isolated series of conclusions and experiments is not requisite.

If we can assume, as an indisputable truth, that not only the phenomena of the so-called inorganic nature, but that such also as are peculiar to vegetable and animal life, stand in a certain relation to each other, and are brought about by certain causes; and if it be true that we can arrive at a clear insight into the nature of organic processes, only by a knowledge of these causes or conditions, then must the inquiry into the amount of mutual dependence of the several phenomena of life upon each other, or of the conditions of their occurrence, be regarded as the most important problem in physiology.

The explanation of a great many natural phenomena requires nothing more than a knowledge of the amount of their dependence on each other.

These relations are discoverable in every branch of natural philosophy, by an extension of our experience, and by proper experiments and observations; nor can there be a question, that just as chemistry is losing the character of a mere experimental branch of knowledge, so also is physiology capable of assuming the rank of a deductive science.

PROGRESS OF INQUIRY.

If, agreeably to the progress of natural philosophy, it were requisite that special should precede general laws,—if it appears necessary to a proper understanding of life to become acquainted with organization in all its forms,—if it be essential for this pur-

pose that the functions of individual organs singly, their mutual relations with each other, the connexion between their form and the substance of which they are composed, and the amount of relationship between the material of the bodies which surround them, must be known with a perfect accuracy, then must we indeed confess that we are still immeasurably distant from understanding that universal and final collective term which comprehends the idea of life, or the knowledge of the causes and the connexion between vital phenomena in all their variety. We are so far removed from this point, that to many the idea of the probability, or even of the possibility of the discovery of such general laws in physiology, is beyond their comprehension: to most persons it has become impossible to distinguish between psychical and physical vital phenomena, or to disconnect their idea of vital power from the form of living members.

OBSTACLES TO ADVANCEMENT FROM PRECONCEIVED OPINIONS.

The man of the best trained understanding cannot free himself from the influence of the laws on which his faculty of perception depends. If by observation during a long period, he has daily seen two certain phenomena or facts in the closest union, if he has found that for centuries before his birth, the same have been recognised as inseparably connected, if either by accident or by design, he be brought to regard one or other of them singly, then will he, notwithstanding the greatest exertions, be totally incapable of disconnecting them, so that the supposition that these two facts are naturally separable will at last appear to his mind unintelligible and altogether incomprehensible.

Innumerable examples prove that the most acute and clear sighted men, have regarded certain facts or hypotheses as impossible, because they lay beyond their powers of comprehension, whilst it has happened, not only that their successors in science found the same intelligible, but even that there is now hardly any one who does not regard them as universal and indisputable truths.

Men of the deepest reflection, raised above ordinary ideas, were unable to comprehend that the power of gravity was exerted upwards as well as downwards, that the sun at so great a distance could have influence upon the earth, or the earth on the moon. The great Leibnitz himself scouted the Newtonian theory, because to him it seemed impossible, that without the aid of some mechanism in continual operation, or some governing angel, the heavenly bodies could move in a curved line round a common centre; for he conceived that, in obedience to nature's laws, these bodies, without some such extraneous aid, must fly from their orbit in a tangential direction.

The Newtonian doctrine of gravity was thrown aside, on the axiom that no body can produce any effect in a place where it is not itself; and the theory, now familiar to every school-boy, of gravity exerting

its influence through boundless space without any intervening material agent, appeared to men the most distinguished, to contain in itself a contradiction so gross, that they attached to it far less probability than they did to the most fleeting and baseless creation of their fancy.

Many of the facts in mechanics and physics which we know to be the discoveries of time, the fruits of the greatest patience, and the result of the most unremitting and laborious investigations, appear to us now so plain and simple, that had we not the history of their development before us, it would seem incomprehensible how the truth of them could for a moment have been doubted by any person in any age. The simple proposition that a body once put in motion could continue endlessly to move with unaltered velocity or unchanged direction, seemed so apparently at variance with the most common and manifest experience, that the recognition and admission of this truth met for a long time with the most determined opposition.

That two chemical agents by their combination in indefinite or unlimited proportions can form a compound possessing definite and unalterable properties, appears to us now at variance with the clearest dictates of reason.

The grasp of reflection, as we thus see, has not the slightest dependence upon the external appearances, but upon the forwardness of mental development. If a man's mind fails to reach the intermediate link which connects a fact with the ordinary train of ideas, then the demonstration of the fact, not being apprehended as truth, is rejected by his understanding. This is the greatest obstacle standing in the way of the application of chemistry to psychology, and preventing many physiologists from paying regard to chemical discoveries; if here, as well as in pathology, faith is given to supposed experiences, the evidence of which stands on no better foundation than the fact, that they have been received as true for the last thousand years, if in these two branches of knowledge the modes of verification and proof do not change, then there is no hope that with all the progress which chemistry can make in time to come, it will ever yield any essential benefit to physiology and pathology; and farther, it is impossible that these departments can ever rest on a scientific basis without the aid of chemistry and physics. Every one feels the necessity of this aid, but the mode of applying it is not clear.

PHYSIOLOGY AS A DEDUCTIVE SCIENCE.

If it require no more exact proof of the opinion that every empirical science, and so also physiology, can in progress of time arrive at the rank of a deductive science, then it must appear quite indifferent whether or not, or what it has borrowed from other sciences to enable it to attain that rank. We know that astronomy has now become but a part of the general science of motion, and that

it is indebted solely to this circumstance for its scientific foundation.

THE INQUIRY AFTER PHYSIOLOGICAL LAWS.

If we keep in view that as no occurrence takes place in the physical world, so also no phenomenon presents itself either in animal or vegetable nature, which is not related to, or the immediate consequence of, some other phenomenon, which has just preceded it,—that the present condition of the plant or animal is in connexion with certain other conditions which take place in it; then it is clear that if all the causes which can bring about this condition are known to us, if we are acquainted with the modification which their influence undergoes by time and space, and their several peculiarities, then shall we be able to foretell what ought to be the subsequent condition of that plant or of that animal. The expression of the sum of these conditions or relations, is what is termed a natural law.

DIFFERENCE BETWEEN THE CHEMISTRY OF THE PRESENT DAY, AND THAT OF FORMER TIMES.

No one who is acquainted with the history of the development of chemistry, and of the several other departments of physics, can deny that the chief reasons for the advance of these sciences, spring from the gradually acquired conviction, that every natural phenomenon, and every occurrence has more than one condition, and that every effect has several causes, and it is the simple investigation of the plurality of conditions, and the unravelling of effects, which distinguish the chemistry of the present day from that of former times. During the reign of the doctrine of phlogiston, by the adoption of the principle of dryness or of moisture, of heat or of cold, of combustibility, of metallicity, of acidity, of volatility, of colour, or such like, a limit was speedily set to exact inquiry,—for every property we had a special representative essence, which explained every thing; the simple description of the phenomenon included also the explanation of the phenomenon. The change of weight which bodies undergo, when subjected to chemical processes, passed for a property of their matter, as in the case of the effervescence of chalk with an acid. The chemists possessed their theory for the phenomena of combustion and calcination; but they considered it as foreign to their province to investigate the alterations in weight thereby produced. It was left to those who studied physics to explain how a body could increase in weight, when it had lost some of its constituent parts, and how one and the same body could possess a variable weight. The increase of weight was an accidental property, and to the metals, among other bodies, as it was supposed, this property belonged.

THE POSITION OF MANY PHYSIOLOGISTS OF THE PRESENT DAY.

A number of physiologists and pathologists have taken up a po-

sition on the subject of vital actions and phenomena, like what the old supporters of the doctrine of phlogiston took. They ascribe the effects of the nervous system to nervous energy; vegetation, irritability, sensibility, action and reaction so called, the simplest effects of motion and of rest, the causes of formation or of the change of form, which are summed up under the term formative forces, are regarded as existing of themselves, or, at least in their demonstrations, they occupy the place of the antiquated representative essences.

CONFUSION OF EFFECT AND CAUSE.

The most ordinary phenomena incorporate themselves, even now, in the minds of many physiologists, with certain capabilities or properties, which they are misled to explain by peculiar causes, different from those which have been long known; so the restoration of equality of density to two fluids, different in their nature, or two dissimilar substances in solution, which are separated from one another by an animal membrane, has received the name of endosmose and exosmose, and with this term people are content, as if it were something of itself self-existent, embracing the rationale of the process, while the phenomenon is nothing else than a filtration differing from the ordinary one, in so far that the permeation of the fluid, instead of being the effect of pressure, is brought about by a traction, attraction, or affinity.

To this mode of viewing the subject there was added the equally great source of error, that causes were similar to their effects,—that like must of necessity be produced by like. The cause of combustibility was considered as something inflammable, the cause of acidity as something in itself acid; the caustic property of burnt lime was attributed to a causticity which might be transmitted from one body to another—as, for example, from lime to the so-called mild alkalies. In the alkalies there was placed the existence of a primitive alkali,—in the acids, of an *acidum universale*; and in the salts, of a primitive salt: other allied bodies were varieties of a substance.

FALSE EXPOSITION OF PHYSICAL PROPERTIES.

Many physical properties of a body were explained by the physical property of its minutest particles; a sharp taste was ascribed to sharp particles. Lemery's ideas, that the most minute particles of an acid had the form of lance points with a hook, and that the atoms of alkalies were porous like a sponge, met with unanimous assent; then the weakening of an acid by an alkali, and their reciprocally neutralizing properties, were admirably explained by this means; and when ammonia precipitated gold from its solution, this, too, was perfectly intelligible to his contemporaries, as they recognised in ammonia the property of breaking off the lance points from their shafts; it acts, says Lemery, like a club

which a boy throws against a nut tree laden with its fruit. Thus, then, certain substances which possessed an astringent or cooling taste, had attributed to them an astringent or cooling effect on the living body; and thus a drink, rich in alcohol, being in ordinary conversation denominated "strong," came to be introduced into medicine as a strengthening agent.

It is an error to suppose that this mode of reasoning on natural phenomena is to be regarded as belonging to a time long gone by. In an "Enquiry into General Physiological Chemistry," published at Brunswick in 1844,¹ the following quotation will show that these ideas pass for sound with many medical men of our own time:—"We conclude therefore correctly," says Mulder, "that in sulphur, selenium, chromium, and manganese, similar powers reside, and their existence is manifested by the circumstance that the chemical relations of these substances are independent of the material properties of their constituent elements, but dependent on the forces which govern the molecules of sulphur, selenium," &c. There is thus included in the comprehension of the term sulphur, something of an idea of a force, and, indeed, of that force which is active in selenium, and which exerts its influence not only to produce certain combinations, but also contributes to mark the essential attribute of the substance. So, also, this force in sulphur and selenium shows its influence in the more remote combinations.

The beautiful investigations of Mitscherlich and Kopp on isomorphism have, as we see, not yet been able to banish the impressions resulting from this mode of viewing the subject.

EVERY NATURAL PHENOMENON IS PRODUCED BY MORE THAN ONE CAUSE.

It cannot be denied that a single phenomenon, or a single effect, by itself, which is universally manifest at all times to the sound perceptions of the most opposite individuals, can throw doubt over the truth of many opinions and views; whether justly or not it is of no consequence to us here. Doubt can reign only over the causes by which the effect is produced; they may be wholly unknown, but never can these causes, in the province of natural philosophy, be discovered by the power of the imagination; for we know that one and the same effect—as for example, a mechanical movement, a vesicle on the skin, or a muscular contraction—may be induced by different causes; and that one and the same cause may produce a multiplicity of effects.

CHEMICAL COMBINATION.

We know that the mere occurrence of a chemical combination depends on at least three causes or conditions, which must stand to

¹ Versuche einer allgemeinen physiologischen Chemie Braunschweig bei Vieweg, 1844, S. 7, der ersten Lieferung.

one another in certain relative proportions. If the combination succeed, that affinity, cohesion and caloric must have an equal share in the process.

DIFFERENT EFFECTS OF HEAT.

We know farther, that when a given quantity of heat expands a solid body, it compels the minute particles of the body to separate from one another; that a double or treble quantity completely alters the qualities of the body; and that a new change takes place in its properties, if the quantity of caloric superadded reaches a certain amount. It is well ascertained, that expansion, liquefaction, and the passing into gaseous matter are all produced by the same cause, but that the effects produced are by no means proportional to the cause; and the reason of this we have very properly sought for in the opposition and resistance of another cause; and by this means has our demonstration of the nature of cohesion arrived at a scientific basis.

Also, that the same caloric which is necessary to the union of the oxygen of the atmosphere with quicksilver, produces the very opposite effect, viz. the decomposition of the oxide of mercury into mercury and oxygen gas, when the temperature is raised a few degrees.

By a simple process of oxidation, we obtain acetic acid from alcohol. We procure this acid by the oxidation of the salicylate of potass. We can obtain it from wood, sugar, and starch, by the application of heat alone, with the exclusion of the oxygen of the atmosphere. In all these cases, the product is precisely similar; but the conditions of formation are very different.

DISCRIMINATION OF VITAL EFFECTS THE PRINCIPAL CONDITION OF PROGRESS.

If it be true that a scientific basis for physiology can be acquired only by an investigation into the various conditions upon which vital phenomena depend; that the first problem of physiologists of the present day is to be sought for in a discrimination of the vital effects from the causes by which they are brought about—then it is certain that, as a number of causes have, or may have, a share in the production of these effects, physiologists must possess an accurate and familiar acquaintance with all forces and causes, more especially those natural causes which can bring about motion of, or a change in, the form and quality of matter. How otherwise would it be possible for a physiologist to separate the effects produced by these causes, from those that must be ascribed to a cause which, in its indications, has nothing in common with weight, affinity, &c.

FAILURE EVEN WITH APPLICATION OF THE GREATEST ACUTENESS.

No one can doubt that these principles of investigation pass for

good also in the pathology of the present time. There is indeed an immeasurable difference between the manner of viewing questions in natural philosophy, at present employed, from that which was in use in former days; but it will be long before the influence of this latter disappears from Germany at least. With a thorough knowledge of the principles upon which philosophical investigation ought to be conducted, we too readily try to burst the restraints which they impose; and universally, where we do not see the way, our unfettered imaginings plant a forest of errors before the porch of knowledge. The antitheses and paraphrases once so applauded, play still, as they formerly did, an important part in all theories, and rob the description of the most ordinary facts and occurrences of that simplicity and clearness which it is capable of possessing. The fault is not in the principles themselves, but in their not being vigorously applied.

EXAMPLES.

Some quotations from the writings of an illustrious recent pathologist would sufficiently vindicate the correctness of these assertions, and place before our eyes the influence which the old method of treating scientific inquiries still exercises upon the mode at present employed. They will prove how small is our chance of arriving at correct conclusions, when we set out with ill-defined ideas, and how great has been the loss to science from the renunciation, even by men of talent, of chemical and physical knowledge.

(*To be continued.*)

Part Second.

REVIEWS.

1. *Transactions of the China Medico-Chirurgical Society for the year 1845-6.* 8vo, pp. 80. Hong Kong: 1846.
2. *Medical Notes on China.* By JOHN WILSON, F.R.S., F.S.S., Inspector of Naval Hospitals and Fleets. 8vo, pp. 267. London: 1846.

WE are firmly convinced of the great benefits resulting from the free interchange of sentiment among medical men in well-conducted associations for professional purposes, whether as regards the improvement of individual skill, or the advancement of medicine as a science. We, therefore, hail with much pleasure the announcement of the formation of a medico-chirurgical society, composed of

British practitioners, at the eastern extremity of the old world. It appears from the work before us, that the China Medico-Chirurgical Society was established last year in the month of May at Hong Kong. The transactions open with an introductory address by Mr Alfred Tucker, the president of the society, "on the advantages to be gained by a medical association, and a cursory review of the diseases incidental to Europeans in China." This address is followed up at subsequent meetings by papers, viz. by Dr A. Little "On dysentery, as it affects Europeans in China;" another by Dr Dill, entitled, "A brief account of the nature, causes, symptoms, treatment, and morbid appearances of the fevers incident to Europeans in the island of Hong Kong;" a third by Dr Barton, "On diseases of the liver, as observed amongst Europeans resident in India and China, with remarks upon their comparative infrequency in the latter country;" a report by Dr Barton "On some cases of variolous and vaccine inoculation in conjunction." Besides these, the Transactions contain reports of the oral remarks made by members on incidental topics at the meetings, and some correspondence on subjects connected with the objects of the society. Among the correspondents of the society, we are glad to remark one of the late Governors-General of India, Lord Auckland, whose letter is full of good sense and valuable advice, as respects the objects the society should be in a condition to promote.

The list of members given in the Transactions amounts to thirty-six, and includes medical officers of the army, the navy, and the East India Company's service, civil practitioners in Hong Kong, and medical missionaries to China.

Of fever, as it occurs at Hong Kong, mention is made in the President's address, as well as in Dr Dill's paper. The president Mr Tucker, regards the fever prevalent at Hong Kong, among Europeans, as altogether of a periodic character, produced by the miasms arising from the extensive irrigation of the soil for the cultivation of rice during the Chinese regime; and he enforces this view by reference to the greater prevalence of the disease among the troops and inhabitants, according as their quarters or houses were situated more contiguous to the swamps. Dr Dill joins heartily with Mr Tucker, in ascribing the prevalence of fever at Hong Kong, to the extent of the swampy ground. And we find that Dr Wilson, whose excellent Medical Notes on China have now been for some months before the profession, is unequivocally of the same opinion. We have thought it worth while to set before our readers the united opinion, on this point, of these three observers in so large a field of experience, because it is becoming a fashion to deny the existence of marsh effluvia. In a recent French memoir on the subject, the author argues that there is no evidence of the existence of miasms; that miasms are a fiction of the fancy; that they should not be believed in, till some one has laid hold of them. We are no admirers of the kind of science which suggests such

sentiments; and they are not confined to the question of miasms. It is a plausible but narrow philosophy, very intolerant and very conceited. The term miasm represents the influence, whatever that may be, by which marshes produce fevers, if it be a fact that marshes do generate fevers; and the latter plainly is the essential point in question, Do marshes produce fevers, or is their alleged hurtfulness in this respect, one of the *false facts*, in which medicine is so unhappily rich? If marshes do generate fevers, as we believe with the multitude, then is our right indisputable, without imputation on the logic of our philosophy, to apply to the physical product, through which marshes so operate, some such name as miasm, no matter how little may be as yet known of its origin, composition, or mode of action. Miasm at present may be likened to an unknown quantity in the higher arithmetic, many, yet not all, of the elements in the equivalent of which still remain to be discovered. The results of investigation into the nature of miasm have been hitherto more negative than positive. They show more what it is not, than what it is; but this kind of negative knowledge is uniformly an essential part of the fruit of the inquiries which are to lead to truth. They hasten the moment of discovery, by circumscribing the range within which the truth sought must lie. To throw aside the idea of miasm, because no positive knowledge of it has yet been attained, is premature, to say the least. It is not improbably one of the subtlest of organic products, most likely gaseous in form. And is organic chemistry so much beyond its infancy, or have gaseous bodies been so long appreciable by sense, that any right spirited code of scientific investigation should counsel us to cast up the search already in despair? It is an unfounded charge against any influential authorities in medicine of our time, that they confound a mere name with a cause, mistaking a shadow for a substance, and contenting themselves with explaining phenomena by the word miasm, when they should be inquiring into its nature. There is no such contentment in the medical profession with things as they are. There is the strongest desire to penetrate the nature of the miasm of marshes, but medical men have already done all that is in their power. They have cleared the way for the operations of the chemist. They wait for the application of his nicest modes of analysis.

It appears from the papers before us, that Hong Kong being chiefly a mass of granite undergoing rapid decomposition in many places, it had occurred to some medical men that the prevalence of fever might be connected with the decomposition of the rock. Mr Tucker and Dr Dill, from the Transactions, and Dr Wilson, from his Notes, appear to have applied their attention to this hypothesis, and all concur in the belief that it is untenable.

We cite Mr Tucker's sketch of the symptoms and progress of the Hong Kong fever:—

“The intensity with which the disease invades the system is very uncer-

tain. As is usual with pyrexia, there is loss of mental energy, more or less confusion of the ideas, diminished motive power succeeded by more or less sensation of cold, frequently amounting to a general rigor; occasionally this period or stage of collapse is very intense, and great alarm is caused by the patient dying at the invasion of the disease; this aggravated form simulates very much the aspect of spasmodic cholera, there is a livid cold surface, covered by a wet sweat, a sunken anxious expression of the countenance, and sometimes incessant vomiting and purging of a thin serous fluid (this exhalation of fluid from the mucous surface is frequently mixed with the usual secretions), distressing jactitation, short hurried respiration, apparent somnolency, but when aroused there is perfect intellectuality, and the almost universal reply is, that they feel much better; but there is an absence of clonic spasm, ischuria renalis, and the ejected fluid does not resemble the peculiar cholera or rice water excretion. These varieties of the first stage are succeeded by the hot skin, flushed countenance, functional derangement, generally of the encephalon, quick full pulse, and intense thirst, frequently attended by vomiting, impatience on pressure over the epigastric and hypochondriac regions, and increased frequency at stool; this stage is also uncertain, the exacerbation being occasionally extended to the second or third day, when a free diaphoresis takes place, and a well marked remission ensues, which is succeeded by an exacerbation, which frequently proves fatal; the severity or duration of these exacerbations is very uncertain; this fever, particularly the most fatal form, assumes a most insidious and deceptive character, the accessions are marked by little febrile disturbance; in fact, the skin is below the natural temperature, the pulse is rather more frequent, but there is deficient tone imparted to the finger; the tongue is rather dry, and brownish, there is considerable somnolency; but when asked if he has any complaint, replies that he feels quite well, but is evidently fractious at being aroused; there is usually a short remission in the morning, indicated by wakefulness, and apparent little complaint. This form of disease frequently terminates fatally on the fifth or seventh day, to the surprise of the inexperienced practitioner, who has prognosticated to the friends a favourable issue. During the accessions there is generally diarrhoea, which frequently becomes dysenteric, the functions of the various cavities are uncertainly affected, and often the metastasis of venous congestion from one cavity to another is rather embarrassing. The prognosis becomes more favourable, as the remissions are more protracted, or when it becomes of an intermittent character; the reverse is expected when the exacerbations are prolonged, with progressive prostration of the vital powers."—Pp. 11, 12.

The appearances after death are not of a very definite character. "In the worst suddenly fatal cases," Dr Wilson says, "nothing was detected, excepting a loaded state of the large venous trunks, and a certain degree of venous congestion of dependent parts in the thorax and abdomen. The brain, and its investing membranes, were more exsanguined, and consequently paler than in normal condition, there being no serous effusion either under the meninges, or into the ventricles. Neither here nor in other parts, was there any thing which, with the utmost latitude of language, would be considered inflammatory, or having the least approach to it. The vascular condition of tissues was, indeed, the very reverse of that which constitutes inflammation." When the disease was more protracted, similar appearances were met with, somewhat modified, and with some additions. In two cases seen by Dr Wilson, "there were inflammatory patches at the great curvature of

the stomach; and in two others, similar patches on the dura mater,—conditions which there is reason to think, from the previous symptoms, arose shortly before death. In three instances of considerable duration, the cortical portion of the brain had a peculiar uniform mahogany colour; but there was neither abnormal softening, nor induration that could be traced; nor was there more, there was perhaps less, than the usual quantity of effused fluid. When fever had followed flux, which was not uncommon, ulceration was occasionally found in the colon, the result evidently of the preceding affection. The integrity of organs, including the liver and spleen, when the violence of the paroxysms in many cases is considered, is surprising." Dr Wilson draws an inference from the appearances after death, against the opinion which denies that fevers are ever essential, and assigns to them a symptomatic character.

On the subject of dysentery, we quote the following account of the treatment of the acute form, from Dr Little's paper, and a part of the discussion which followed it:—

"I go on to speak of the *treatment*, first of the acute form. The first 'quæstio vexata' which we have to dispose of, is that of blood-letting; the second that of mercury, these certainly holding the first rank in the scale of remedies. From the cases, that I have met with in China, I would state generally, that venesection is seldom admissible, being, as I conceive, only applicable to the more acute states of dysentery, where it attacks young robust persons who have newly arrived in the climate, or, at least, who have not been reduced by previous disease, where the symptoms are evidently of a sthenic character, presenting general constitutional disturbance, as well as the other local symptoms which have been already enumerated, in such cases I believe free and decided blood-letting from the arm not only admissible, but essentially necessary; our intention is to check incipient inflammation of the mucous membrane of the large intestine, and to prevent its direful consequences, and venesection offers the most prompt means of doing so 'in limine.' After general blood-letting, our next object is to affect the system with mercury, and, if once this is fairly done, we can pronounce our patient safe, *i. e.* out of immediate danger from the present attack. Nearly all our writers on tropical dysentery agree as to the necessity of administering the mineral, but there is considerable difference of opinion as to the dose in which it ought to be given; some being favourable to small doses of calomel or blue-pill, frequently repeated; others to large or scruple doses at longer intervals, and I am inclined to prefer the latter practice. After venesection, I would give scruple doses of calomel every six, eight, or ten hours, until the system shewed signs of having received it; our object is to produce salivation as speedily and effectually as possible; and from what I have observed, I would prefer this method as being the most expeditious and effectual. Opium is frequently combined with mercury, particularly when the latter is given in moderate doses; and here, without doubt, it is beneficial by its sedative effect in preventing the mineral from running off by the bowels; but I do not consider it always necessary to combine it with the large dose of calomel, as this latter seems to have a sedative effect upon the stomach and small intestines, which favours its absorption into the system; besides, when febrile symptoms run high, opium is likely to prove injurious; in the chronic stages of dysentery, however, opium is a most valuable remedy. Purgatives are very seldom necessary, as diarrhoea generally precedes the attack; but when constipation exists, castor-oil is perhaps the best laxative that we

can employ. Topical bleeding by leeches is a very valuable remedy, and capable of being employed in almost all stages of the disease, and as leeches are cheap and plentiful here, their utility ought never to be lost sight of. In cases where fixed pains or soreness in the course of the colon is complained of, the application of two or three dozen leeches, followed by fomentations, is often of decided benefit; and this remedy can be employed when general blood-letting is out of the question. In the relief of another very distressing symptom, viz. irritation about the anus and rectum, leeches prove particularly useful; being applied to the verge of the anus, they lessen the capillary engorgement and the irritation, and pain consequent upon it. Enemas are also very beneficial in allaying pain and tenesmus; they ought to be small in quantity, not above an ounce or two, composed of congee or barley-water, about the temperature of the body, and they ought to contain from one to two drachms of laudanum. Decoctions of oak-bark and mineral astringents have been recommended, but I never saw them used, and feel pretty certain that they would aggravate the symptoms, as long as there is much pain and tenesmus, but they might be of service in chronic cases. Suppositories of two or three grains of solid opium I have seen of use occasionally, but sometimes they seem to act as an irritant and aggravate the symptoms.

"The thanks of the meeting having been presented to Dr Little for his valuable communication on the symptoms, causes, prognosis, pathology, and treatment of tropical dysentery, as met with in China,

"Dr Dill made the following remarks:—

"With respect to the little connexion between *dysentery and disease of the liver*, he would mention a case where there was abscess of the liver containing two pints of pus, with all the sequelæ of chronic dysentery in the large intestines. He could not say that persons having the peculiar *smooth glassy tongue* of dysentery in China invariably died; he had met with a case that had recovered. Flatulence had been mentioned as a constant accompaniment in dysentery; but there were two kinds of flatus, one which turpentine readily relieved by exciting an explosive action of the gut, but true tympanitis was a sure indication of approaching death.

"*Blood-letting* was of very questionable efficacy, except at the early stage of dysentery; those admitted with this disease into the Seamen's Hospital were the worst forms of chronic dysentery. Had met many cases of the disease in the overseers of public works, brought on apparently from exposure and intemperance, especially from Sam-shu.

"*Accumulation of acrid bile*, was the frequent cause of tormina and tenesmus; in such cases diluents and castor-oil were indicated, but calomel only added to the mischief. Did not approve of large doses of calomel; had not seen it act as a sedative; had found strong mercurial ointment used externally highly useful; leeches relieved the local pain, and should be succeeded by hot poultices.

"A change of air on the occurrence of remittent fever, or return of the symptoms, was plainly indicated as the only safeguard for the continuance of life, the disease being of so treacherous a character.

"Dr Little remarked, that he would not advise, generally, scruple doses of calomel, but after bleeding in the acute stage, he had found it of an immense service, appearing to affect the system sooner than smaller doses of the mineral; and when once affected, should consider the patient safe.

"Dr O'Sullivan had observed much dysentery at Whampoa, in persons fresh from England, caused in nine out of ten cases, by the use of *Sam-shu*. General and local bleeding, with full doses of calomel, and two grains of opium was his usual practice; the greatest difficulty arose from the patients gratifying their insatiable appetites with improper food, which, passing away undigested, added, of course, considerably to the irritation already set up in the intestinal tube. Had seen dysentery benefited by an attack of intermittent fever.

"Dr Barton's experience was in favour of small doses of calomel and opium,

frequently repeated, which rapidly affected the system, but had seen cases where salivation had failed in checking the disease.

"Dr Hobson mentioned the comparative exemption of the Chinese from dysentery; of several thousand patients treated at the Missionary Hospital, had but very few cases of this disease presenting; even diarrhoea was not common, but like most Asiatics, they were subject to sanguineous discharges, which were speedily relieved by astringents. Thought that their temperate habits united to a lymphatic temperament, might account for their peculiar insusceptibility to inflammatory diseases.

"Mr Fearon admitted the use of *Sam-shu* as the frequent cause of dysentery in Europeans; but the most temperate have been seized and died from this disease.

"In reply to a question, why *Sam-shu* was so prejudicial? Dr Young thought that it arose from imperfect distillation, and its containing probably an oily matter."—Pp. 22, 23, 26, 27.

We have thus given a specimen of the subjects which engage the attention of the members of this distant medical association, and we cannot but add our good wishes for its success.

Before taking leave of it, we should state that one of the objects of the institution is to form a medical school for the instruction of the Chinese youths, in the knowledge and practice of the profession. On this subject we quote the following passage from Lord Auckland's letter to the president of the society:—

"It may, I think, also be learnt from India, that it is in the acquirements which may fit the student for the medical profession, that the best inducements are found for the education of the natives of Asia, as well from the promise of personal emolument, as, because there is no national or religious feeling which is not favourable to an improvement in the art of healing; and it may be remarked that a Chinese doctor, well instructed and possessing the English language, would be amongst the best agents for inquiry, and for promoting good will between his countrymen and our own—I hear that you have already schools at Hong Kong, at which the English language and the elements of English learning are taught to the Chinese. You have medical establishments at which young Chinese are admitted as apprentices, and presently the government may possibly be induced, as the government of Ceylon has done with great advantage, to send young men of promise to receive a systematic medical education, at the excellent medical college at Calcutta, and ultimately in some cases, even to the medical schools of England."—Pp. 60, 61.

With Dr Wilson's Medical Notes on China, to which we have above referred, many of our readers are probably already familiar. The book contains a great amount of interesting and instructive information, both medical and general. It speaks of Chusan as well as Hong Kong, of their climate and respective diseases,—gives many particulars of the diseases which affected the British force, both military and naval in China,—affords some hints of the diseases to which the natives are subject, and concludes with a very amusing account of Chinese medicine.

The Surgical, Mechanical, and Medical Treatment of the Teeth, including Dental Surgery. By JAMES ROBINSON, Surgeon-Dentist to the Metropolitan Hospital, &c. 12mo, pp. 320. London 1846.

THE author informs us that the first part of his work is devoted to the anatomical and surgical department of the dental art, and the second to mechanical dentistry, embracing all the improvements of the present day.

Mr Robinson has performed his task in a very creditable manner, and produced a work which will be very useful to the student who devotes himself to this department of the profession, and also to the general practitioner, who is often called upon to perform operations on the teeth and gums.

We regret to see that Mr Robinson expresses a dread of having *too explicitly divulged the secrets of the art*. We have no sympathy for such dread, and cannot contemplate the idea of holding any thing *secret* which can alleviate human suffering; it should never have a place in the mind of an ingenuous and honourable practitioner.

While we express our approval of the manner in which Mr R. has generally treated his subject, we must enter a caveat against his practice in regard to the stopping of teeth. The principle he sets out with is excellent, and so far we entirely agree with him, that "this operation, if timely resorted to and well performed, is *one of* (he might have said) *the* most useful in dentist surgery;" but when he goes on to say that it (stopping) may be resorted to after the nerve is exposed and considerable pain has been experienced, we must dissent. Pain seldom arises in a carious tooth till the nerve has been exposed; and when that has taken place, the organization is so much impaired, that attempts to save it generally involve much suffering, and bring on a crisis for which extraction is the only remedy. Stopping is most valuable in preventing the extension of caries and subsequent pain, but is not a remedy to remove pain when it has once fairly set in; instead of relieving pain arising from exposure of the nerve, it generally aggravates it, and hardly ever fails in the end to render extraction necessary, though the patient may have experienced little uneasiness at the time of the operation. Sometimes there will be no uneasiness for weeks, or even months; but, after some accidental exposure, the tooth will become tender, or a swelling will occur in the gum opposite the tooth, sometimes very deep-seated, and that which should have been done at first becomes indispensable.

The portion of the work devoted to Mechanical Dentistry embraces much useful information; but we apprehend that little is to be acquired from books in this department;—an early and continued training to the use of instruments is the only way to acquire

skill and dexterity in the employment of the various expedients of this most useful art.

We shall conclude with one or two quotations, such as may interest our readers in general; and, first, from our author's chapter on the history of the Dental Art.

"We have historical evidence, that in the palmy days of Greece and Rome, the diseases and general appearance of the teeth met with considerable attention. Aristotle speaks of forceps for extracting teeth. Pliny also and Martial mention various tooth-powders: and the wearing of artificial teeth evoked the satire of more than one Roman poet.

"Among the Greeks, a peculiar affection called stupor of the teeth, is particularly described, in connection with the presence of tartar. This people looked upon dentition as a mysterious and significant event; and those who died before its fulfilment were denied the funeral honours of the adult, and ignominiously buried, instead of being burned in the usual manner.

"As a *distinct* art, however, dentism received but little attention from the ancients. The writings of Hippocrates and Galen, which formed the medico-dental text-books, contain receipts for electuaries, powders, and elixirs for beautifying the teeth, but nothing on what may be called the proper art and science of dentism.

"In the early part of the eleventh century, Albucasis, an Arabian physician, wrote on diseases of the teeth, and gave drawings of a number of instruments used in his time for extracting, scraping, and the other dental operations then in practice. But it was not till the end of the sixteenth century that the art began to receive that undivided attention to which it is entitled both by its difficulty and usefulness.

"No less than thirty-eight treatises on the subject were published about that time. These abound indeed with what is nowise useful at present, but still the spirit that produced them is an evidence that the subject was beginning to be considered of importance, and that time and experience alone were required to raise dental surgery to its proper station among the arts.

"The first attempt to classify diseases of the teeth was made by M. Fouchard, of Paris, who has been denominated the Father of dental surgery. Before his time, the practitioners of the art seemed to have considered the teeth merely in their mechanical phase, taking little account of them as complex organic structures, entering by their own vitality into the formation of the living body. M. Fouchard had the merit of directing attention not only to the construction and separate treatment of the teeth, but also to the indications which, in common with the adjacent parts, they furnish of the general health.

"This was an important advance in the subject. For that the teeth not only represent the apparent, but also the *innate* fundamental constitution of individuals, is unquestionable: nay, so intimately are beauty and firmness in these organs connected with health, that the celebrated Delabarre (to whom we are indebted for an excellent work on the subject), recommends those mothers who have constitutionally bad teeth, to refrain from suckling their children, lest they entail not only bad teeth but debilitated constitutions on their offspring; and he points out, that in choosing a wet nurse, "her eyes should be lively and animated; her hair and eyebrows brown or light-coloured; her lips red; her *teeth* sound and good; her gums hard, and well-coloured."

"We before mentioned that by the end of the sixteenth century, thirty-eight treatises had appeared on the teeth; but so much had the subject grown in consideration at the end of the eighteenth century, that no less than one hundred and fifty-eight works connected with it had then been given to the European public.

"To enumerate these works would be inconsistent with our plan, but it may not be amiss to notice a few of the most important. Thus Bunon pub-

lished in 1723, Mouton in 1746, Le Cluse in 1755, Bourdet in 1758, Bunon again in 1759. In 1759, the celebrated work of Jourdain made its appearance, and in 1770 Thomas Berdmore produced a work on the teeth, which by its value and importance obtained him the appointment of dentist to George III.

"About this period, the famous John Hunter turned his attention to the subject, and presented the world with his "Natural History of the Teeth;" a production which, while it enlarged the sphere of dental knowledge, piqued the pride and roused the ambition of the English practitioners of the art.

"The inaugural Dissertation on the Structure of the Teeth of man and animals, published in 1793 by Robert Blake, gives evidence of the rapid strides that had been made in the anatomy and physiology of the teeth. The work was soon followed by others, and at the commencement of the nineteenth century, the surgeon-dentists of this country were fully entitled to rank with the practitioners of the other branches of surgery.

"The most important of the works of our own time are those of Fox, 1803, Bell, 1829, Nasmyth, 1839, Owen, 1840; also those of Snell, Waite, Robertson, Jobson, and Koecker; besides which, we might enumerate several smaller works by Saunders, Clendon, White, and others, and many valuable detached papers in transactions and periodical publications.

"Within the present century, dentistry has advanced far more rapidly in the United States than in any other country. Thus we have Gardette in 1821, Parmly, L. S. Parnly, and Flagg in 1822, Trenor, 1823, Fitch, 1829, Brown, 1833, Spooner, 1836, Goddard, 1843; and in 1845, Dr Harris, one of the editors of the *American Journal and Library of Dental Science*, published a most able and comprehensive work, entitled the *Principles and Practice of Dental Surgery*. And many other productions on the subject have appeared in America, and especially in the periodical just alluded to."—Pp. 9 to 14.

Our next quotation refers to the present state of the art:—

"Before concluding we may be allowed a word respecting the present state of dental art and science. The conditions of success appear to be not different in this from what they are in other branches of knowledge and practice. They are all summed up in one phrase, UNITED LABOURS. Whatever of discrepancy there is in the works of our chief authorities, is greatly owing to the isolation in which they studied, and to the want of a general means of collating their ideas. Again, whatever of progress we find in that country which takes the lead in the dental art, appears to be due to an absence of prejudice and jealousy which allows free communication of ideas, and association of common interests among the members of the profession. For the association of dentists in America has not only given its members generally a *status* in society unknown to dentists elsewhere,—has not only repressed those characters who intrude themselves upon the public here, and given merit its station, and honesty its pre-eminence,—but has also contributed largely to the advanced state in which dental science stands in the United States. It is painful to think that we do not yet possess the same advantages in England. The names of Harris, Brown, Parmly, Maynard, Greenwood, Goddard and Haydon, shine high over our heads in these respects, and present us with bright examples of brotherly good feeling, scientific excellence, and practical success.

"In modern days odontology has become a science separate from the dental art. This is because the philosophical value of the teeth is so great as to make them one of the grand means of classification in natural history and comparative anatomy. The microscopic structure of these organs has also been noted with great patience and powers of research. Among those who contributed to the general science of the teeth in the sixteenth, seventeenth, and eighteenth centuries, Eustachius, Malpighi, and Leeuwenhoek stand pre-eminent; and among the best odontologists of our own time are Owen, Nasmyth, Goodsir, Müller, the Cuviers, Rosseau, Purkenje, and especially Retzius."—Pp. 15 and 16.

We take one passage from our author's chapter on the causes of the irregularity of the teeth, as affording an example of the evils of meddlesome practice, though our readers will hardly feel its full force without the cuts referred to.

"The most serious cause of irregularity of the second teeth remains yet to be spoken of; viz., the too early extraction of the *first* teeth before the second are sufficiently developed to take their places; which is frequently practised under the idea of preventing deformity. That this practice, however, is more often the cause of permanent deformities of the second denture than any other, may be easily proved. For how often do we meet with otherwise beautiful faces, the contour of which has been irremediably destroyed by it! The practice itself cannot be too severely reprobated; nor can those who indulge in it be allowed to remain within the pale of civilized dentism.

"What can be more painful than to see a naturally well-formed mouth permanently disfigured by the practitioner to whose care it has been entrusted, and who, with the professed design of preventing, actually entails an irremovable deformity on his patient?

"Many cases might be related in which the face has been permanently disfigured in this manner, but we shall content ourselves with a single illustration.

"A young gentleman, six years of age (the son of a nobleman), was taken to a dentist to have his mouth examined. All the first teeth were firm. The dentist, however, asserted that it was necessary that some of them should be removed, or an irregular permanent set would otherwise result. He very dextrously extracted *eight* front teeth, four from each jaw, and dismissed the patient with a wish to see him *when* the second teeth had come through. Twenty-two months, however, elapsed before this occurred; and during the interval the alveolar processes had collapsed, and the teeth gradually made their appearance, some of them half-way down the jaw at the centre, others protruding at an angle of forty-five degrees. All this, it was asserted, would soon come right if a *few more* were extracted. The four canines and two temporary grinders were now removed. Thus in less than two years this operator had removed the whole of the front teeth; and when I saw the boy, at which time he was *thirteen* years of age, his mouth was as represented in the annexed cut. The arch and angles were beautifully developed, and allowed ample room for the increased size of the teeth. Now surely this is a lamentable case. The general reader will readily appreciate the false grounds of the practice itself, by referring to the wood-cut, which shows the intimate connection between the first or deciduous, and the second or permanent teeth."—Pp. 36 to 39.

On Wounds and Injuries of the Arteries of the Human Body, with the Treatment and Operations required for their Cure. By G. J. GUTHRIE, F.R.S. London: 1846.

THESE lectures are, as it were, a revival of the admirable work published on the same subject by Mr Guthrie sixteen years ago. Engaged since that time in active practice, the author seems to have had his attention constantly directed towards this subject; and the present work is a confirmation of all the principal points which were formerly so strongly urged by him on the profession.

The sound precepts inculcated in these lectures are confirmed

by cases (130 in number), illustrative of all the wounds and injuries to which the arterial trunks are liable. The cases, a large number of which occurred in the author's practice in the Peninsular war, and many, which have occurred in the hands of other surgeons, are of themselves a valuable store.

The effects of punctured, incised, and lacerated wounds of the larger arterial trunks are pointed out, and the inefficiency of nature, without the assistance of art, in healing such lesions of the arterial tissues in man, is laid down as a law, which must always be kept in view.

When a large artery, such as the brachial or femoral, is entirely divided, and no surgical aid is afforded, death from immediate hemorrhage does not always take place; although the shock and the loss of blood are frequently so great that the system is unable to recover from their effects, and the patient sinks without an effort of reaction. The retraction of the divided ends of the vessel, the shrinking of its coats, and the formation of coagula have, in such cases, an important auxiliary in the enfeebled state of the circulation. Effectual compression being applied to such a wound, or nature being sufficient to arrest the hemorrhage from the divided extremities, a return of the bleeding, according to the experience of the author, is much more to be feared from the lower than from the upper orifice, retraction taking place to a much more limited extent in the lower than the upper extremity of the divided vessel. The upper extremity retracts, when divided, and at the same time a contraction of the calibre of the vessel takes place for some distance from the divided extremity, so that it assumes the shape of the neck of a French wine-bottle or Florence oil-flask. Should this process be sufficient to restrain the primary hemorrhage, in a few days the orifice of the artery and the surrounding surface, for at least an inch in extent, is found covered by a yellowish-green coloured matter, an appearance which is so strongly marked as to point out the situation of the extremity of the artery. The same process takes place in the lower extremity of the divided vessel, but to a much more limited extent, from which fact it is much more likely to give rise to secondary hemorrhage.

On this subject, the author remarks:—"In all the cases I have had an opportunity of examining, in which hemorrhage had taken place from the lower end of the artery, the following appearances were observable after the interval of four to five days. The same kind of yellowish-green matter marks and conceals the situation of the lower extremity of the artery, as it does the upper. It is, however, thinner, where it immediately covers the end of the artery, which in none of these cases is contracted in the conical manner described as taking place in the upper extremity. On the introduction of a probe with the greatest gentleness into the artery from below, it usually makes its appearance at a point in the yellow

space, raising a thin portion as it protrudes. On laying open the artery, the orifice would seem to have been once closed by this layer of fibrin, but with a less degree of contraction than the upper end of the same artery; the layer still, however, forming an obstacle sufficient to cover and close three-fourths of the orifice, the blood having flowed through the remaining fourth, which had probably given way by accident.”—(P. 13.)

The following case is given as illustrative of the points here referred to.

A serjeant of the 62d regiment, was wounded at the battle of Toulouse, on the 10th of April, by a musket-ball, which passed through his right thigh, from which profuse hemorrhage had taken place at the time of the injury. Ten days afterwards dark coloured blood issued copiously from both orifices of the wound. Mr Dease was called, who placed a ligature around the femoral artery at the lower part of the upper third of the thigh. Hemorrhage recurred on the 7th of May, when the limb was amputated, and the man died.

“On examination, the artery was found to have been divided exactly where it passes between the tendinous expansion of the triceps and the bone. The upper portion of the artery thus cut across was closed,—a probe introduced into it from above would not come out at the face of the wound, although the impulse given to this part on moving it, was observable in the middle of a large yellowish-green spot, which I had previously declared to be the situation of the extremity of the artery, which had contracted behind this in the shape of a claret bottle for about an inch, having within it a small coagulum. The lower end of the artery, from which the hemorrhage had taken place was marked by a spot of a similar character; but on passing a probe upwards from the popliteal space, it came out at a very small hole in the extremity of the artery, in the centre of the yellow spot, the canal of the artery not being contracted and diminished, but only apparently closed by a layer of the yellowish-green matter laid over it, and adhering to its circumference.”—(Pp. 13, 14.)

The different condition of a limb, immediately after the infliction of a wound of its principal artery, and that of a limb, which is the seat of aneurism, is of much importance. In the former case, the sufficiency of the collateral circulation to support the vitality of the limb is doubtful, especially in such injuries of the lower extremities. In the latter, the collateral circulation, as the author points out, becomes increased in activity almost from the very commencement of the disease; and, before an aneurismal tumour has advanced very far, the anastomosis around the limb serves to convey sufficient blood for its support. The impropriety, however, of trusting to ligature on a distant part of an artery above the seat of injury in cases of wounds is strongly urged by the author, and his anxiety on this point is manifested by often repeated injunctions as to the practice to be pursued in such cases:—

"The Hunterian theory of the cure of aneurism is totally and utterly inapplicable to the treatment of wounded arteries, accompanied by an open wound, however small or distant. It is always doubtful and frequently dangerous and destructive, even where the external wound has healed. A wounded artery should always be secured at the part where it is injured, and the greater number of those who suffer from such accidents, and are not so treated, will in all probability be lost, unless surgery can come to their assistance by ulterior and more painful operations."—(P. 20.)

In another part it is remarked that the theory of the operation for aneurism, as dependent on the collateral circulation, cannot be applied with safety to spurious aneurisms of recent occurrence dependent on wounded arteries, and the author repeats that it is inapplicable to wounded and bleeding arteries. That such have very properly become the established rules of surgery there is no doubt, and much is due to Mr Guthrie for having placed these points of practice on a proper footing. But we maintain that exceptions must occasionally be made to the general rule, and that, in the practice of surgery, cases of injuries of arteries may occur, where the choice lies between the performance of the Hunterian operation and amputation of the limb; ligature of the divided ends of the vessel being inapplicable from peculiar circumstances. These circumstances principally arise from the manner in which the injury has been inflicted, and the consequent state of the artery in the neighbourhood of the wound, and the state of the adjacent soft parts, which may be in a state of ulceration or sloughing. Case 85, quoted by the author, is an exemplification of the first of these points:—

"Dr Mackenzie was called, on the 5th of November 1845, to a man who had fallen with the whole of his weight on a red-hot poker, the point of which entered the right axilla, immediately below the tendon of the pectoralis major, and seriously burnt all the parts it touched. Eight days afterwards a large eschar separated, followed by a copious flow of blood, which was arrested by pressure. The continuance of this, by means of a graduated compress and bandage, evidently did mischief to the surrounding parts; and, as the bleeding recurred from time to time in spite of it, something more was clearly necessary. * * * * The subclavian was tied above the clavicle, the bleeding did not recur, and the patient recovered."—(P. 49.)

Differing from the author, we consider that the line of practice adopted in this case was correct. The injury had been inflicted by a red-hot iron, and the artery, with its surrounding nerves, was lying bare at the bottom of an irritable and sloughing wound. The vessel, in this situation, was evidently in the most unfavourable state possible for the application of a ligature. In whichever situation the vessel was tied, whether above and below the wounded point, or over the clavicle, the danger of subsequent hemorrhage

was great. But, as the author remarks, "the surgeon hazarded the risk, and won."

A drunkard, wishing to commit suicide, drew a razor across the bend of the elbow, but failed in his attempt to open the artery. The wound took on an unhealthy action, and in a few days the coats of the artery ulcerated, and copious hemorrhage took place. A ligature was applied to the brachial artery, about three inches above the wound. In this case the bleeding did not recur; the wound healed rapidly, and the patient recovered.

A woman, of sixty-two years of age, met with a simple oblique fracture of the lower third of the tibia, which, from neglect or improper treatment, became compound. The upper fragment protruded through a sloughing opening in the integuments. The destruction of the soft parts extended, and the posterior tibial artery gave way, giving rise to hemorrhage, which nearly proved fatal. After some ineffectual attempts had been made to place a ligature on the vessel at the bleeding point, Mr Syme was sent for, and tied the femoral artery in the upper part of the thigh. The bleeding did not recur, and the patient made a slow but permanent recovery.

Did the limits of this short notice permit, we could cite several other instances, which have come under our observation, where the Hunterian operation proved successful, in finally arresting hemorrhage from an external opening, at a lower and distant part of the artery; and we maintain, that cases occasionally occur exceptional to the general rule laid down by the author, where the application of a single ligature above the wound, as in the operation for aneurism, is the most judicious course to be pursued.

In the last lecture, the general precepts inculcated by the author, are embodied in a short *résumé*; and a description is added of the operative procedure to be adopted in placing a ligature on the different larger arteries of the body.

Military Miscellany, comprehending a History of the Recruiting of the Army, Military Punishments, &c. &c. By HENRY MARSHALL, F.R.S.E., Deputy-Inspector-General of Army Hospitals. London: 1846. Pp. 375.

THE former works by the talented author of this volume, prepared the public to receive with satisfaction any subsequent product of his pen, and the work before us will not disappoint them. Miscellaneous in its character, it is intended, as the author informs us, "to supply some information respecting the constitution, laws, and usages of the army, and to excite attention to the means which may ameliorate the condition of soldiers, and exalt their moral and intellectual character." With these objects in view in its composition, it could scarcely be expected that one possessed of the

information, sagacity, and practical good sense of Mr Marshall, should have failed in producing a volume alike creditable to his head and to his heart, and calculated to awaken the serious attention of the soldier, the legislator, and the philanthropist.

The change which a few years have produced on the social aspect of the country,—the elevation of the manufacturing classes,—the additional comforts which they enjoy,—and above all, the more general diffusion of education, render the profession of a soldier less respected and desired than at any former epoch of our history, and seem more and more to threaten us with the arrival of a period, when the obtaining of voluntary recruits will become next to impossible. We are no Utopian dreamers about the perfectibility of mankind, and can only smile at those who imagine that in the nineteenth century men are too wise to go to war. That a time will assuredly come when men shall not learn war any more, we firmly believe; but this will not be brought about by man's wisdom, and will not be seen until each angry passion and resentful feeling shall have been eradicated from the human breast. Then, and not till then, will there be any security for the continuance of peace. It is evident, therefore, that we must attribute the growing reluctance which is so decidedly manifested to the life of a soldier, among our labouring classes, not to any great increase of wisdom on their part, still less to any contempt for martial renown, and least of all to any conviction as to the questionable morality of war at all, but mainly to the great contrast between the comforts of the military and labouring population. If, then, it be possible to elevate the character of the former; and, by increase of pay, a limited term of service, and other mitigations of their hard lot, to place them more nearly on a par with the latter, there may be some hope that the impressment of soldiers, that disgrace to a free country, may not again be resorted to, but that men may be found willing to serve their country when their country proves itself willing to serve them. The growing power of popular opinion in this country, and the much greater attention which is now bestowed on the moral and social improvement of the masses, lead to the hope that the day is not far distant when the soldier will find that he is treated as a man, and not as a machine, and that he is believed to have feelings, and wishes, and hopes, which it were an outrage on human nature to trample on or despise. Those who have watched the current setting in so decidedly in the direction which we have indicated, will anxiously observe by what its future progress is likely to be guided; and, while they will regard with disgust and apprehension the clap-trap displays of interested pettifoggers and political partizans, they will hail the appearance of every work which, like the one before us, calmly indicates where error exists, and wisely shows how that error may in future be avoided.

Many of the subjects discussed in this volume are scarcely within the province of the medical reviewer, but all are worthy the atten-

tion of the medical man, who, if he be guided in the exercise of his profession by an enlightened humanity, will feel that all that tends to elevate the character, and alleviate the condition, of mankind, is worthy of his notice. In the two first chapters, we are presented with an historical sketch of the recruiting of the army, the various laws in force on the subject, and the means adopted for carrying them out, from the time of William the Conqueror to the present day. We have only room to extract two passages. The first corroborates what we have said as to the cause of the reluctance of men to enlist :—

“Those who know the army in its present condition can have but a faint idea of the privations and discomfort which soldiers had formerly to endure—their daily pay during the American War being about 6½d. ; and, as alleged, it was the usage of the service for them to obtain their necessaries through the quarter-master and serjeants, at an extortionate rate, and of inferior value. When the men were billeted on the inhabitants, in most cases they were wretchedly lodged, ‘often in open, tiled garrets, with an unglazed window, or in dismal vaults, fit only for pigs.’ Incredible as it may appear, there was an Irish regiment, in which, when stationed at Perth, the men were under stoppages that left them only 3½d. a day. Their common breakfast was a halfpenny roll and a halfpenny-worth of Suffolk cheese. Hunger impelled the men to commit depredations, which were frequently followed by unwarrantable punishments. ‘It was no uncommon thing to see six, or even ten, of these unfortunate wretches suffer from 100 to 500 lashes each.’”—(P. 55, 56.)

The following suggestions with regard to the system of selecting pensioners for Chelsea Hospital, are worthy of attention :—

“The present system of selecting in-pensioners would admit of great improvement. An hospital for invalids ought to be calculated to receive and accommodate those men who have been most severely disabled in the service of their country—a place where persons who are unable to take care of themselves might find a comfortable home. There are many disabled pensioners who have no relations, or none who are willing to take care of them ; consequently, the result is, that they frequently fall into habits of dissipation, and pass their brief span of life in alternate periods of intoxication and starvation. By the present rules of the Hospital, no man is placed on the list of candidates for becoming an in-pensioner, until he has produced a certificate from a surgeon, ‘that he is capable of taking care of himself.’

“The object of the country, in providing for the accommodation of a few of the men who have been disabled in its service, would be more effectually attained, were a considerable number of the inmates of the Hospital to consist of the most infirm individuals who are on the pension list, and who solicit admission. To take care of this class of in-pensioners, a certain number of comparatively efficient pensioners ought to be admitted, who might be awarded a small weekly remuneration.”—(P. 21.)

The second, a very short chapter on enlistment, need not detain us. In chapter third, we have much interesting information on the physical and moral character of recruits.

The following Table shows the comparative height of soldiers in the British and French armies, in proportions of 1000 :—

Height.	British Army.	French Army, on the authority of M. Hargenvilliers.
Ft. In.		
5 1	0	62
5 2	0	156
5 3	0	187
5 4	0	178
5 5	4	152
5 6	114	107
5 7	180	69
5 8	252	49
5 9	184	22
5 10	128	9
5 11	73	5
6 0	40	2
6 1	15	1
6 2	7	0
6 3	1	0
6 4	1	1
6 5	1	0

The first of the following extracts says little for the state of education among the labouring population of these countries; and the second seems to hint that there must be something very far wrong in a mode of life for which a man is unfitted by education:—

“On a general view of this subject, we cannot help concluding that the state of popular education is wretchedly deficient among the classes from which the army is recruited in this country, that a large portion of the recruits have made little or no progress in the acquisition of the first elements of knowledge, and that there is great room for improving their condition in this respect after they enter the army.”—(P. 96.)

“Well-educated persons, individuals whose parents belong to a respectable class of society, and who have undergone careful moral training, find the thralldom and usages of the service as irksome, and are as liable to military ‘misbehaviour,’ as the uneducated and low-born class of soldiers; perhaps they are, indeed, more liable to fail in respect to their immediate superiors, whose conduct they may consider arrogant or oppressive. Implicit, unquestioning obedience, is an indispensable requisite in every soldier, according to the institutions and customs of the army; and this is perhaps more irksome to well-informed men than to the uneducated.”—(P. 101.)

Passing over the next three chapters, headed respectively “Duration of Engagement,” “Suicide,” “Vices and Virtues of Soldiers,” we arrive at one on “Punishments in the Army,” much of which is well calculated to excite attention at any time, and which will derive additional importance in the eyes of many individuals from recent events. Mr Marshall has traced the history of the several punishments, at different times in use in the army; has shown the relation which they bear to those employed by civil law; and has proved, in an interesting manner, how the amelioration of the latter has exercised a corresponding influence upon the former. Among the military punishments enumerated (now happily abolished), we find many of the most ferocious and sanguinary descrip-

tions." Drowning, hanging, quartering, beheading, dismemberment, maiming, fracturing the limbs, boring of the tongue with a red hot iron, and branding the cheek, slitting the nose, cutting off the ear, &c. On these Dr Marshall well observes :—

"From the foregoing enumeration of punishments employed in this country, it will appear, that they almost all involve the infliction of pain by different means, as death, mutilation of the body, flogging or beating, privation of bodily liberty, banishment, forced labour, limited diet, pecuniary fine, branding, &c. At certain periods particular modes of punishment have prevailed, which having been found inefficacious or unpopular, have been superseded by other forms which have also given way in their turn, and the same punishment has been much more frequently employed at one time than at another. It has been well observed, that 'nothing that philanthropy or sagacity can suggest, will ever render human punishment other than it is, a coarse, indiscriminating, and imperfect preventive of crime, often demoralizing instead of reforming, and only inflicted because, on the whole, it represses, as we hope, more mischief than it occasions. Crime, misery, and punishment, considered abstractedly, are evils in every shape—the last, among the heaviest evils which society must necessarily endure.' Hitherto the institutions which have been established for secondary punishment, have been found to be radically inefficient or vicious ; every mode of punishment which has yet been tried, has disappointed the expectations in which it originated. One result is, I believe, quite certain, that in as far as regards the repressing of crime, and the promotion of good conduct, degrading and severe punishments have failed to a much greater degree than penalties of a comparatively lenient character."—(P. 131.)

Most of these secondary punishments are now abolished,—flogging having taking their place. On the efficacy of flogging, as a means of repressing vice and maintaining discipline in a regiment, military authorities seem somewhat divided ; but there is no doubt whatever that it was in former times most unnecessarily and cruelly inflicted.

"In practice, flogging was almost the only punishment employed, as at this time confinement had not been much thought of as a mode of chastisement. Hence crimes very different in character and enormity were punished by the same degrading mode of infliction. We learn from Dr Hamilton, that private Anthony Gregory, of the 10th Foot, was punished with 100 lashes, for suffering the queue of his hair to drop off when on duty, which, perhaps, he had that morning rather carelessly tied on ; and I have, as late as 1811, seen an African recruit, who did not know a word of our language, brought to a drum-head court-martial and flogged, in consequence of some of his appointments being less clean than they ought to have been. Unsteadiness in the ranks, caused, perhaps, by a man brushing a fly from his face, and the disgraceful offence of stealing from a comrade, met with a similar chastisement, differing, perhaps, a little in the amount of infliction, but the same in ignominy. By these means the moral judgments of officers were in some measure confounded, as offences which received the same kind of punishment come to be considered as of the same guilt."—(P. 163.)

Although every real friend to the army, and indeed every one possessed of common humanity, must regard with pleasure the recent mitigation in the extent to which corporal punishment may be inflicted ; yet they may consider as very questionable the means by which that change was produced. The admirable observations of Sir G. Ballingall, which appear in another part of this

number, render it unnecessary for us to say a single word in reference to the medico-legal question, which is there so ably discussed. We may, however, express our regret, that a gentleman holding the official situation of coroner, should have so little understood the duties of the commander or surgeon of a regiment on such an occasion, as to attempt to direct the popular indignation against them in the way in which it was done.

"A medical officer," says Dr Marshall, "who is officially present at a military punishment, is placed in a most unenviable situation, being in some measure held responsible for the consequences of the injury thereby inflicted, which is obviously unjust, inasmuch as the punishment is too uncertain in its operation for any one to ascertain the boundaries of danger. Moral feeling, age, strength, nervous irritability, climate, previous disease, organic defects, and other circumstances, many of which it would be impossible for the most skilful and the most careful to detect, may render a punishment fatal, which had been intended to be but moderate or lenient. No medical officer can answer either for the immediate or ultimate consequences of this species of corporal punishment. Inflammation of the back, or general fever, may occur after a very moderate infliction, which may terminate fatally, notwithstanding the greatest diligence and attention on the part of a well-informed conscientious surgeon."—(P. 276).

Our next quotations bears so immediately on the point in question, that we shall make no apology for inserting it, though somewhat long:—

"The General Regulations of the Army direct that 'no punishment is to be inflicted but in the presence of a medical officer;' but hitherto, so far as I know, no instructions, either military or medical, have been issued in regard to his duties on a punishment parade. In the last edition of Instructions to the Surgeons of Regiments, issued from the War Office (1st February 1845), the duty of being present at the punishment of a soldier is not mentioned. What, then, is the duty of a medical officer, when he officially attends the flogging of a soldier?

"In reply to this question, I will quote a passage from an address to the jury by the late Lord Chief Baron Macdonald, on the trial of Colonel Wall. 'It is usual,' said his lordship, 'even in the infliction of ordinary punishments, that the assistance of surgeons should be called in, when the punishment is intended at the outset to be only such as experience shews us is never, without a very singularly unlucky accident, attended with death. The medical officer is, it would appear, to guard the life of a delinquent under punishment, so that the army may not lose the services of a man by death, or by being permanently disabled. In the execution of this highly important duty he must be guided by a knowledge of the physiology and pathology of the human body, the habits and duties of soldiers, and an acquaintance with the regulations and usages of the army. A medical officer is presumed to divest himself of any opinion he may entertain in regard to the delinquency a man has committed, or the sentence which has been awarded him; his duty being, in the first place, to prevent the man from escaping punishment by feigning indisposition; and secondly, to see that he does not receive such a degree of injury as may endanger life, or disable him permanently for the duties of a soldier. While a surgeon should invariably lean to the side of safety, duty requires that he ought to be scrupulously careful not to unnecessarily obstruct the course of military law—the rules and usages adopted to establish and sustain military discipline.'

"A medical officer generally takes his station a few paces behind the man

who is undergoing punishment ; but should symptoms of fainting come on, he sometimes moves towards the front of the sufferer, so as to see his face. It is scarcely possible, I think, to place a man in a more distressing situation, when he must frequently witness the imploring countenance, the speaking eye, of a gallant, good-natured, though erring old soldier, anxiously pleading for a remission of his sentence—pleading, I may say, as if the medical officer had it in his power to suspend the punishment at his discretion.

“In the performance of the duty of being present at a punishment parade, a medical officer may be said to undergo a professional trial. Should he give way to his feelings, and unduly interfere with the course of law, he may incur a serious responsibility—the disapproval of his superiors. On this subject I may quote the opinion of Dr J. Gordon Smith, who served for a number of years in the 12th Dragoons. ‘Taking a man down,’ says he, ‘who is able to endure the award of a court-martial, is a thing out of the medical province. I have been obliged to take men down before the infliction of 100 lashes, and I have seen 1000 well laid on without injury to the prisoner. If, after touching his hat to the Commanding Officer, and stating that in his judgment the man could not receive any further punishment at that time, the punishment should be persevered in, the surgeon would be warranted to turn away, and protest that he cannot be responsible for the sequel.’ In my opinion, a medical officer would not, under such circumstances, be warranted in either *turning* or *going away*, or in obtruding any protest respecting his responsibility. He has so far performed his duty, when he has in a respectful manner recommended that the punishment should be suspended ; but he should neither leave the parade nor reiterate his recommendation, unless the Commanding Officer solicits his opinion.

“Formerly, when a medical officer obtained the character of being easily affected by the sufferings of a delinquent, it sometimes happened, in the case of a man being sentenced to a considerable punishment, that another medical officer was ordered to attend the execution of the sentence—one who had obtained the character of not being so easily moved by the feelings of humanity. Let it always be recollected that the execution of a sentence is usually entrusted to the Commanding Officer of a regiment, and that, as he has a direct interest in the preservation of its discipline, and is commonly the person who has brought forward the delinquent for trial, he may be expected to entertain a wish that the offender should receive the whole infliction to which he has been sentenced.”—(P. 272-274).

Our extracts from this chapter have extended to such a length, that we have barely left room to notice the other subjects treated in the book. The next chapter is occupied with the education of the soldier, which as yet has not attracted much attention in this country. In France, for example, we find, from an official document published in the *Moniteur*,

“That on the 1st January 1843, the number of soldiers serving in the army who could neither read nor write was 227,800. In the course of that year, 68,289 attended the regimental schools, namely, 50,245—those in which reading, writing, and arithmetic were taught, and 18,044 who followed lectures on grammar, arithmetic, geography, geometry, fortifications, &c. Of the 50,245 who attended the course of primary instruction, 11,202, totally illiterate, learned to read, 12,571 to read and write, 5223 to read and calculate, and 13,899 to read, write, and calculate—in all, 42,895.”—(P. 323).

But Prussia, excelling as it does all other countries, in the provision made for popular education, seems also to have taken the lead in the intellectual improvement of the soldier :—

"There is a school in every battalion of the Prussian army, which a captain superintends, and three lieutenants, who receive additional pay for alternately taking a share in the instruction of the soldiers. At the expiration of his three years' service a soldier is able to read, generally to write, and has acquired some knowledge of the history and geography of his country. As the value of the places given as pensions on retiring from the service must correspond in a great degree with the capability of the individuals to whom they are given, a powerful stimulus is thereby excited to intellectual improvement. Non-commissioned officers, who wish to become officers, first undergo an examination in geography, history, simple mathematics, and the German and French languages. At the end of another year they are again examined in the same branches of knowledge, and also in algebra, military drawing, and fortification. If they pass this second examination they become officers. This attention to the mental as well as physical strength of an armed man, forms a new era in military and political science."—(P. 324).

With this extract we must conclude, cordially recommending the perusal of Dr Marshall's very interesting and instructive work.

Report of the Meeting of the British Association for the Advancement of Science at Southampton.—Athenæum, September 19, 1846.

WE cannot participate in the sentiments of those who affect to think that the annual meetings of the British Association are but an empty parade of science, or that they are unattended with useful results. Even if it were the case, which it is not, that no important discovery has been made, or made known through the proceedings of the Association, we should still maintain that such a perambulatory institution, directed by men of unquestioned genius in their several provinces, cannot but be productive of much good in a national point of view, as subservient to the spread of knowledge. It is the sentiment of a little mind to wish to confine knowledge within a small range, to enhance the dignity of a few. It may be that there are in this country, enough of institutions for the actual improvement of science as it exists; but how few are there of a first class, for the diffusion among the people of improvements, as these are made. Should the knowledge of science be shut up within the cloisters of colleges, and the walls of the royal societies, confined to the seats of universities, and metropolitan cities? Should the inhabitants of our wealthy provincial towns, be denied the satisfaction of having their dormant appetite for scientific investigation stirred into activity, by hearing and seeing the men whose names are to figure hereafter in the history of the sciences, which they respectively cultivate? Of what national use was knowledge, when limited as it was, it was buried within monastic walls during the middle ages? And how brilliant were its effects, when long pent up it began at last to ooze into public channels by the invention of printing. The elements of education will be but of small advantage to men, if pains be taken to shut up the page of science from their eyes. It is man's distinction and

privilege among his fellow animals, that he is capable of understanding the mightiest operations of nature, and of rising from the contemplation of these to a knowledge of their great Author—the kinds of reflection on which are based all intellectual and moral improvement.

We have been led to make these few observations, as certain parties still continue the attacks on the association, which have been indulged for the last few years.

As our readers in general must be aware the chair, vacated by Sir John Herschel, was taken by Sir R. Murchison, and Prince Albert honoured the association by visiting the several sections.

Our notice must be confined to the proceedings of the physiological section, and some extracts from the report of what passed in the section of Zoology and Botany.

“ Thursday, September 10,

“ SECTION E.—PHYSIOLOGY.

“ President—Prof. OWEN.

“ Vice-Presidents.—Sir J. CLARK, Dr ROGET, Dr J. FORBES, Dr FOWLER.

“ Secretaries.—Dr SARGENT, Dr LAYCOCK, Mr C. P. KEELE.

“ Committee.—Sig. Matteucci, Dr Clark, Dr J. Bull, Dr Engledue, Dr R. Lee, Sir J. Richardson, Dr C. J. B. Williams, Dr W. Carpenter, Prof. Clark, Dr King, Dr Latham, Prof. Jones, Dr White, Dr Leeson, Dr A. T. Thomson, Dr J. Blake.

Prof. OWEN in the chair.

Dr FOWLER read a paper “ On the Relations of Sensation to the higher Mental Process.”—The author observed that *man*, when viewed as a whole, should be considered as consisting of a body constituting the instrument of the mind, as the telescope is of the eye, *adjustable*, but not *adjusted*: that its indications are perceived through the medium of the *muscular sense*, as the images reflected or refracted are the signs of external objects to the eye. Animals have adjustments ready made: man has to learn his. To see, to hear, and to touch, as an artist, or even in the common usages of life, a man just couched is as an infant: till he can adjust he sees, as we do with an unadjusted telescope, merely a vague sight. This gives rise to *search*. To see with intelligence, we must *look*, that is, *exert* the combined adjustments: this constitutes an appreciable distinction between *sensation* and *perception*. The unadjusted impressions pass the mind as vague trains of thought, linked and associated sequences, the machinery of reveries and dreams. That searching to obtain well-defined perceptions is effected by adjustments, attention to our own *working observation* will afford abundant proof; but a more protracted attention is necessary to prove, and to convince a man, that his *memory* and *powers of conception* equally depend on the mind's perception of a *reiteration of the adjustments of sensation*. But that this is so we have proof, in the *corporeal* actions induced by conception being like those produced by sensation by presence of the objects. This conception of savoury food excites secretion in the salivary glands—of an insult, the gesture of anger, &c. In the *power* of forming and giving fixity of tenure to conceptions men differ widely. It is to this power Dr Johnson alludes, when he says, that whatever can make the past, the distant and the future, prevail over the present, raises us in the scale of thinking beings. Now, Dr Darwin and Dr Brewster have shown that these conceptions are effected by adjustments of the

body; in other words, that the "mind's eye" is, in fact, the body's eye. To have vivid conceptions disposable by our volition forms the orator, the poet, the sculptor, and the painter.—After numerous illustrations of this faculty, and allusions to it by the poets, the author stated that these sensations, perceptions, and conceptions, do not exist in an insulated state; the adjustments by which they are affected are so linked and associated by retransmissions that they reciprocally call up each other. This *linked association of adjustments* he took to be the machinery by which the *association of our ideas* is effected, and that *the propensity of our structure to these functional adjustments* constituted all we had of *ideas* which had been denominated *innate*; and he considered that this reciprocating perception from different sources of sensation (as the eye and ear) gave birth to the ideal theory of "species, images of forms and colour of things without their matter" of the old metaphysicians. In conclusion, the author contended that Mr Hume's opinion on the non-existence of the idea of power, and of cause and effect (except as antecedent and consequent), and the arguments and facts adduced against that opinion, receive an elucidation from the consideration of the modes of action of the muscular sense, of which both Mr Hume and his adversary were quite ignorant.

The Secretary read a paper by Dr Searle, "On the Cause of the Blood's Circulation through the Liver."—After alluding to the powers which circulate the blood in the system generally, the author declared it to be still a problem by what combined forces the portal circulation was carried on in the liver,—one cause of the general circulation being apparently absent, namely, the oxygenation of the blood in the arterial system, in the blood the portal system being deemed wholly venous. The solution of the problem depended, he thought, on the fact that the stomach and bowels were (like the cutaneous) a respiratory surface, by which the portal blood becomes oxygenated to the necessary degree. In support of this view, he adduced the experiments of Magendie, who found 11 per cent. of oxygen in the stomach of criminals examined after decapitation, and carbonic acid and nitrogen in the intestines. The source of this oxygen he believes to be the air swallowed with the food and saliva, and in combination with cold water. This oxygen he believes to be absorbed by the veins and lacteals, and communicated as a source of power to the portal vessels. He deemed the absorbing power of the gastric and mesenteric veins to be increased by the diminution of the quantity of blood in the vessels by the secretion of bile. In conclusion, he thought the ruminant animals required an additional supply of oxygen to maintain the respiratory function over their large gastro-intestinal surface, and that this was supplied from their peculiar function of rumination.

FRIDAY.

Prof. OWEN in the chair.

Dr J. HENRY BENNETT read a paper 'On a peculiar form of Ulceration of the Cervix Uteri,' which was of purely practical interest.

A paper, by Prof. RETZIUS, 'On the Ethnological Distribution of round and elongated Crania,' was read.—On this paper a lengthened discussion arose on the degree to which physical peculiarities of races may become modified by climate, education, progress of civilization, and the effect of dwelling with higher races. Mr LYELL gave it as the result of his recent observations in the Southern States of America, that the Negro race is much altered by living even for a few generations with the white races, and always for the better, even when no mixture of race exists; and that where it does exist, the result is ever to retain and propagate the higher developments of the white races.

Dr CARPENTER read a paper 'On the Physiology of the Encephalon.'—The object of this communication was to bring under consideration the inferences to which we are led by the study of comparative anatomy, in regard to the functions of different parts of the human encephalon. He first pointed out that our comparisons need not be restricted to vertebrated animals, since the ganglionic centres of invertebrata may be shown to be analogous with certain por-

tions of the cerebro-spinal system of the vertebrata. He stated it to be a universal fact, that all organs of special sense have distinct ganglionic centres, which must be regarded as the instruments of their respective sensations and as the sources of motions directly connected with those sensations; and that the whole cephalic mass of invertebrated animals was composed of a collection of such ganglia, without any vestige (except in the highest) of cerebrum or cerebellum. These organs make their first appearance in fishes; and bear at first but a small proportion to the chain of sensory ganglia, which forms the anterior termination of the spinal cord. In fishes we find distinct olfactive, optic and auditory nervous ganglia, together with thalami optici and corpora striata, the degree of development of which has no reference to that of the cerebrum; in fact, the bodies usually called the cerebral lobes of fishes are (except in the sharks, &c. which have the vestige of cerebral hemispheres) entirely composed of the analogues of the corpora striata. Hence Dr Carpenter considered that these bodies, instead of being appendages to the cerebrum, really belong to the group of sensorial ganglia, and are to be regarded as altogether making up the ganglionic centres of common or tactile sensation, and of the movements prompted or directed by it. This chain of ganglia, although comparatively small in man, with reference to the bulk of the cerebral hemispheres, still exists in him, and must be regarded as the instrument of the same operations as those to which it ministers in the lower animals. Arguing from actions in the latter, analogous phenomena in man in health and in disease, the author attributes to the sensory ganglia the formation of sensations, and the origination of respondent movements, which may be distinguished as *consensual*. To this category the purely instinctive actions of the lower animals, which seem executed without any *idea* of purpose, and in simple response to the promptings of sensation, appear referable, together with a variety of actions in man, such as that of yawning, from the sight or sound of the act in another. Dr Carpenter hence endeavoured to show that we must regard the cerebrum as the instrument of the formation of ideas, of the memory of ideas and sensations, and of the intellectual processes founded upon them, which terminate in an act of the will; and he pointed out that *ideas* may produce the same effect on muscular movement as sensations themselves, as when the suggestion of the idea of yawning induces the action. He also showed how the anatomical connexions of the cerebrum with the sensory ganglia would cause its communicating fibres to exert an influence on the latter, corresponding with that which is effected by the sensations directly received from the organs of sense. With respect to the *emotions*, he endeavoured to show that they may be regarded as compound states resulting from the simple feelings of pleasure and pain associated with certain ideas, or classes of ideas:—the feelings of pleasure or pain he would locate, with the sensations which commonly excite them, in the sensorial ganglia; whilst the formation of the ideas, which are essential parts of the emotions and propensities, is clearly a cerebral operation;—and he showed, in conclusion, how this view of the functions of the principal parts of the encephalon harmonises with the known duplex action of the emotions,—first in producing involuntary movements, and second in stimulating and influencing the reasoning processes.

A lengthened discussion followed, in which Dr LAYCOCK denied that we had yet a sufficient number of facts ascertained either to deny the higher mental processes and emotions to the lower animals, or to induce consent to the physiological distinctions drawn by Dr Carpenter from the anatomical structures in man and mammalia. He defended his dissent by facts in natural history, and physiological and anatomical views relative to the encephalon published by himself, two years ago, in papers read before the Association.

The Section adjourned until Tuesday, the 15th.

THURSDAY.

SECTION D.—ZOOLOGY AND BOTANY.

President—Sir J. RICHARDSON.*Vice-Presidents*—Mr C. DARWIN, Dr R. BROWN, Prof. E. FORBES, Mr H. E. STRICKLAND.*Secretaries*—Dr LANKESTER, Messrs T. V. WOLLASTON, H. WOOLDRIDGE.

Committee.—Messrs W. Spence, N. M. Priaulx, Dr Carpenter, Messrs G. T. Fox, J. Hogg, Von Middendorff, Messrs R. Ball, W. Thompson, R. M'Andrew, Prof. Ansted, Prof. Agassiz, Messrs H. Watson, C. C. Babington, G. Newport, Prof. Owen, Rev. L. Jenyns, Mr W. Yarrell, Prof. Bell, Prof. Balfour, Messrs R. Patterson, J. Gould, Prof. Allman, Mr A. Strickland, Prof. Lindley, Prof. Jones, Mr C. Peach, Rev. J. Barlow, Messrs J. Bullar, W. Ogilby, W. Burchell, W. H. Lloyd, A. P. Prevost, Mr J. S. Bowerbank, Prof. Royle, Dr G. Lloyd, Mr G. Busk, Dr H. Falconer, Dr Bell Salter, Rev. W. Hincks.

Prof. OWEN read a paper, 'On the Homologies of the Bones collectively called "temporal" in Human Anatomy.' The author commenced by referring to the definition of the term "*homology*" as contradistinguished from "*analogy*," given in the glossary in the 'Lectures on Invertebrata,' 8vo, 1843,—the sense in which it is there used being the same as that in which it has been used by several German and French Anatomists; though, as the Professor remarked, in geometry, those sides of similar figures which are opposite to equal and corresponding angles are sometimes said to be "*homologous*;" and in logic, the term *homologous* has been applied as a synonym of homonymous, to such things as agree in name but are of different natures. In anatomy, however, its meaning is just the reverse, signifying things or parts which are of the same essential nature, whatever different forms or names they may bear in different animal bodies. Thus the fore-limb of the *Draco volans* being composed of essentially the same parts as the wing of the *bird*, is *homologous* with it; but the wing of the *draco*, being composed of different parts, viz. the ribs and skin, is not homologous, but is analogous to the wing of the bird, as having a similar relation of function. Prof. Owen gave several other instances of "*homology*" and "*analogy*," and proceeded to define the different kinds of "*homology*." The widest relation of homology is that in which a part or series of parts stands to the fundamental vertebrate type of organisation:—thus, when the "*mastoid*" process of the temporal bone of Anthropotomy is said to be "*the parapophysis of the parietal vertebra*," its *general* homology is enunciated. When it is said to repeat, in its vertebra, or natural segment of the skeleton, the par-occipital of the occipital vertebra, and the post-frontal of the frontal vertebra, its *serial* homology is indicated, just as when we say that the radius in the arm answers to the tibia in the leg, one rib to another, in the successive series of skeleton-segments. When the essential correspondence of the mastoid process in the temporal in man with the distinct bone called "*mastoid*" by Cuvier, and "*temporal*" by Spix and Agassiz, in the skull of a fish is shown, its *special* homology is determined. In the present communication, Prof. Owen proposed to consider the *general*, *serial*, and *special* homologies of the parts which, from their peculiar mutual confluence in man, have been termed collectively the "*temporal bone*" in human anatomy. The nature and signification of the different constituents of this complex bone have excited much discussion, and given rise to great diversity of opinion amongst the chief comparative anatomists of Germany and France. Prof. Owen commenced with the consideration of these special homologies; but premised a definition of the ideal type of the vertebrate skeleton, in order that the allusions to the *general* homologies of the parts might be understood. The skeleton of a vertebrate animal, in its widest signification, included hard and dry parts, referable to the visceral organs, to the skin, and to moto-sensory systems; and these primary divisions had been termed respectively "*splanchno-skeleton*," *exo* or *dermo-skeleton*," and "*endo* or *neuro-skeleton*." He should consider the arrangement of the parts of the endo-skeleton only with respect to their relations to a common or fundamental

type. They formed a series of segments succeeding each other in the axis of the body, with or without appendages diverging from them. Each segment consisted typically of a central piece or body," of an upper or neural arch, formed by two "neurapophyses," and a neural spine; of an under or hæmal arch, formed of two hæmapophyses, and a hæmal spine, of two "parapophyses," or lower or transverse processes, of two "pleurapophyses," or vertebral ribs. Besides these primarily distinct and independent elements, there were parts continued out from them, called processes, as the upper transverse processes, or "diapophyses," and the oblique or articular processes, called "zyapophyses." The natural arrangement of the endo-skeleton bones of the skull was in a series of four segments, conformable to the above typical structure of a vertebra, with lateral or diverging appendages in some classes. In the present communication, the author confined his observations to the homologies of these bones of the skull called collectively the "temporal" bone in anthropotomy. It was well known to consist of distinct parts in the human embryo, which afterwards coalesced; these were the "squamosal," or part answering to the "squamous and zygomatic processes;" the "tympanic," or "external auditory process;" the "mastoid," with which the "petrosal," or petrous part of the temporal, was connate; and the "stylohyal," or "styloid process." The squamosal was traced from man through the lower mammalia, progressively decreasing in extent, and forming less and less of the walls of the cranial cavity, until it could be removed without exposing that cavity, as in the sheep and whale. It is very small in the monotremes; is reduced to its zygomatic process in the bird; is an irregular osseous column, wedged between the malar and tympanic lines, in the crocodile; and disappears, according to the author, with the disappearance of the true zygomatic arch in batrachia and fishes. The bipartite condition of the tympanic pedicle in the batrachia, and its quadripartite division in most osseous fishes, did not essentially affect the homology of such pedicle with the simple tympanic pedicle in the saurian and bird, but was explicable, Professor Owen thought, on the principle of vegetative repetition and subdivision of parts characteristic of inferior organisms; but a condition, the final purpose of which in giving elastic flexibility to the large pedicle supporting the lower jaw and hyoid apparatus in fishes, was clearly appreciable. With regard to the mastoid element, it was shown to increase in extent as the squamosal diminished; especially in the lowest mammals, as the echidna, where it formed a much larger proportion of the proper walls of the cranium, was connected with the occiput, sphenoid, and parietal, as well as with the squamosal, and was connate, as usual, with the petrosal. It was traced, retaining these functions and increasing in size and connexions, through birds, where it was mistaken by Cuvier and Hallman for the squamosal; and through reptilia to fishes, where Cuvier had recognised its special homology with the mammalian mastoid; but was contended by Spix and Agassiz to be the squamous element of the temporal. Professor Owen adduced arguments in support of the Cuvierian view, and concluded by discussing the much mooted question of the homology of the petrosal in reptiles and fishes; the part so called in fishes by Hallman, Prof. Owen agreed with Cuvier and Agassiz, and regarding as the great ala of the sphenoid: he also showed that the part called by Cuvier petrosal (rocher) in reptiles, was the ala-sphenoid.

Prof. AGASSIZ said that he had intended to have brought this subject before the notice of the Association, but he was glad to find that Prof. Owen had taken it up. It was to British naturalists that naural history was first indebted for a distinction between analogy and affinity, and that which Prof. Owen had pointed out between analogy and homology was equally important. As an instance of the importance of studying both the analogy and homology of an organ, he exhibited a specimen of a fossil which, from a mistaken homology, he had regarded as the bone of a reptile, but had since found to be that of a fish. With regard to his own views, which Prof. Owen had opposed, it was enough for him to know that Prof. Owen had opposed them to lead to a rigorous re-examination.

Part Third.

PERISCOPE.

ANATOMY AND PHYSIOLOGY.

ON THE CORPUSCLES OF PACINI.

In the year 1832, A. G. Andral, Camus, and Lacroix, being candidates for an anatomical appointment at Paris, and being required, as an exercise, to dissect the cutaneous nerves of the hand, demonstrated to the judges several small firm bodies, of a whitish colour, various in form, the size of a millet-seed, or of a grain of mustard, which were in union with the filaments proceeding from the collateral nerves. In the following year, a memoir on the nerves of the hand, was read by Lacroix, before the Anatomical Society of Paris, which raised some discussion on the nature of those bodies, when Camus pronounced them to be ganglia. This memoir was referred to a committee of the society, but appears never to have been reported on. The first memoir which appeared in print on the subject, was by Camus. It was read before the Anatomical Society, in January 1834, and was published in their Transactions. In this memoir, Camus represents them as ganglia; says that some of the corresponding nerves of the sole of the foot present similar bodies; that they are continuous, both superiorly and inferiorly with the nervous threads on which they appear; that their union with these is by a filament, hardly distinguishable from cellular tissue; that, in the hand, they are found only on the palmar aspect, and on the anterior half of the lateral aspects of the fingers; that they approach near to the termination of the nerves; that, in general, after the production of these bodies, the nerve divides only once, to terminate in the form of tuft in the dermal tissue; that these bodies are of less magnitude in the toes than in the fingers. A. G. Andral soon afterwards denied that these are nervous bodies, affirming that their union with the adjacent nervous thread is by a membrane, and not by nervous substance. Cruveilhier and Blandin adopted similar views in their respective works on anatomy. Guitton, on the contrary, in 1843, revived the notion of these bodies being nervous expansions, attempting to show that they are of fewer number in the Negro, and besides of smaller size in the ape; and that they exist in other animals also, as in the bear, the dog, the cat. He showed also that they exist in infancy, and in the fœtus; and that, at these periods of life, they have a greater proportional volume. He affirms also, that, in idiots, from birth, they are few in number, and extremely small. Longet, in his work on the anatomy of the nervous system, regards the evidence of the nervous nature of these bodies as not rising beyond a probability. In the mean time, in Italy and Germany, other anatomists had been engaged in the investigation of these bodies, Pacini, Henle, Kölliker. In 1835, Pacini announced that, as early as 1831, he had noticed these bodies; and, at the former date, gave an account of them, which did not go much beyond what had already appeared in France. In 1840, Pacini's¹ more particular description was published. The joint memoir of Henle and Kölliker, came out in 1844.² Pacini's second description goes far beyond that of the French anatomists, while the subsequent memoir of Henle and Kölliker, confirming, in almost every respect, what Pacini had taught, lays open the intimate structure of these bodies, as shown by the microscope, to a much greater extent. These bodies,

¹ Nuovi organi scoperti nel corpo umano da Filippo Pacini; Pistoja, 1840.

² Ueber die Pacinischen Körperchen an den Nerven des Menschen und der Säugethiere, von Henle und A. Kölliker; Zurich, in 4to, 1844.

then, though found chiefly at the extremity of the hand and foot, are met with also elsewhere; on other sensitive cerebro-spinal nerves, and on the great sympathetic, as in the mesentery, in the mesocolon, around the pancreas. On one hand as many as from 150 to 350 may be counted. These corpuscles are pedunculated, the peduncle being variable in length, so that they are sometimes close to the nervous filament to which they are attached; sometimes more or less distant from it. The peduncle is transparent, and embeds itself in the corpuscle, to the extent of one-fourth or even one-half of its height. Both peduncle and corpuscle are composed of concentric laminæ, like an onion, with this difference, that, between the tunics of the corpuscle, an albuminous fluid is interposed, while there is none between the tunics of the peduncle. The corpuscle itself is opaque, but that part of the peduncle which is embedded in it is transparent, like its free portion. The number of tunics in the corpuscle varies from forty to sixty—that is the corpuscle is composed of from forty to sixty capsules, one within another, with interposed fluid, and the same fluid fills also the central capsule or cavity, around which the others are disposed. Partial partitions pass between the tunics, and these prevail chiefly towards the free extremity of the corpuscle, which led Pacini to describe an inter-capsular ligamentum at that place, connecting the several capsules together. The outer surface of the exterior capsule is in union with the adjacent cellular tissue, and blood-vessels through it pass into the corpuscle. Each tunic or capsule of the corpuscle consists of two layers, an exterior, with circular fibres, and an interior, with longitudinal fibres. The tunics of the peduncle appear to be continuous with the tunics or capsules of the corpuscle, so that each capsule is described by Pacini as having a particular peduncle derived from the common peduncle; and this explains the conical form of the portion of the peduncle embedded in the corpuscle, since its thickness must successively diminish as each layer expands into a more and more interior capsule. Here Pacini's researches may be held to terminate, and those of Henle and Kölliker to begin. Pacini does not appear to have distinctly seized on the character of the filamentous prolongation of the conical extremity of the peduncle at the central part of the corpuscle. The central capsule forms a cavity containing fluid like the rest, and like the rest must be an expansion of the corresponding inner tunic of the peduncle; but, in the axis of this central capsule, there ascends from the conical extremity of the peduncle a thread or filament, which is not a capsule, but, as Henle and Kölliker have shown, a *primitive nervous fibre*. This primitive nervous fibre forms the axis of the peduncle, and of its prolongation, and ascends free in the central capsule of the corpuscle, surrounded by fluid. The portion of this primitive nervous fibre contained in the peduncle, and its prolongation, is cylindrical, and possesses the microscopic characters, in all respects, of the other cerebro-spinal nervous fibres. But, from the appearances which it presents under the microscope, after it passes from the extremity of the peduncle free into the cavity of the innermost capsule, the authors conclude that it changes from the cylindrical to a flattened form, and also that it becomes of diminished bulk. Much difficulty has occurred in determining the mode of termination of this nervous fibre, as it appears sometimes to pass out at the free extremity of the corpuscle. The following propositions include what Henle and Kölliker have been able to determine on this point:—1. That there is never a terminal loop on the fibre; 2. That the escape of the fibre from the corpuscle is extremely rare; 3. That, in an immense proportion of instances, the fibre terminates within the inner capsule; 4. That the fibre ends by a rounded swelling; 5. That it often divides before swelling, so that there are two terminal swellings of the fibre within one corpuscle; 6. That this last arrangement is so common, that it may be considered as a simple variety of the normal form. Other observations have been made by the above named anatomists, on the internal structure of this swelling of the fibre, and the modes of its occasional division, but these as yet appear to lead to no definite result.

Professor Denonvilliers, from whose memoir we have drawn this account, concludes in these words:—"The remarkable investigation of which I have here presented an analysis, establishes beyond doubt the nature of the central fibre of the corpuscles of Pacini, and its continuity with the nervous branches, with which they are in union. Thus to each must be assigned a share of merit in the series of investigations undertaken to elucidate this obscure and interesting point in the anatomy of the nervous system. To Andral, Camus, and Lacroix, the honour of having first pointed out the existence and external characters of these corpuscles; to Pacini, that of having made known their singular structure, and particularly the superposition of the capsules which envelope the central cavity. Lastly, to Henle and Kölliker, that of having placed beyond doubt the texture of the central fibre, and its identity with the primitive nervous fibre."—See *Archives Générales de Médecine*, Mai. 1836.

CHANGE OF COLOUR IN A NEGRO BY DESQUAMATION OF THE CUTICLE. By THOS. S. SAVAGE, M.D.

The negro Tah-too Duari, the subject of Dr Savage's report, was twenty-five years of age, of the Grebo tribe, which inhabits, as the aborigines, the vicinity of Cape Palmas, in Upper Guinea. His father and mother were both of the same tribe, the former was decidedly black, the latter yellow, "the two extremes observable in the tribe, and between which there is found almost any variety of shade." Tah-too's natural complexion was black, yet not of so deep a hue as his father's. When engaged in preparing the ground for rice on his farm, situated between two extensive marshes, in March 1844, he was attacked with ague. From the first attack of the intermittent, he experienced an extremely annoying and painful sensation under the skin like the pricking of needles, and followed by intense itching. A papular eruption then broke out first on the neck, and then over the body. After eight days, desquamation began and continued during three days, the cuticle coming freely off in pieces of from half an inch in diameter down to a very minute furfuraceous exfoliation. His body had now lost the negro colour, being of a dingy yellow, like that of the sole of the foot, after having been immersed in salt water. During the desquamation there was no perceptible excretion of oily, purulent, or serous matter, except from the eyes, from which there was at first a copious secretion of tears, and afterwards of purulent fluid, accompanied, as Tah-too himself thought, with the removal of a membrane from the sclerotic. Dr Savage does not profess to adopt the truth of the removal of a membrane from the sclerotic; but declares that Tah-too's eye, instead of the dull yellowish white, so characteristic of the eye of the negro, presented, after the desquamation, the clearer white or bluish tinge of the white man's eye. A month after the first eruption, a second papular eruption struck out, followed also by a desquamation, the cuticle thrown off being thinner than that thrown off at first. His colour now became lighter than before. "This man cannot be said to be *really white*, except on the back of the hands, on the wrists, feet, and ankles. The skin on the hands is free from that coarseness and corrugated appearance peculiar to the negro race, and is as delicate and soft as my own, showing through the new cuticular medium the blue veins beneath. On the lower part of the back, on the abdomen, front of the thighs, and calves of the legs, there is a dark hue, much increased, however, by the thick black hair on those parts, which appears to be but little, if at all, changed. On most other parts of the body there is a dull white; in some places a decided white, with considerable delicacy and softness of skin. His toe and finger nails are undergoing detachment, and new nails are appearing. His aspect is not that of a mulatto, but, with the exception of his decidedly marked negro features, and the crispness of his hair, that of a white man. Were it not for these points of exception, he would be taken for a legitimate member of the Caucasian family in any part of the world. But his unchanged and unchangeable outline stamps him

indelibly as the descendant of Ham." "He is highly pleased with his change of complexion; attaches great importance to it from the notice it gains. When placed under my observation by his father, it was enjoined upon me to prevent, if possible, his return to a negro." After a few weeks, the hair on the surface of the body generally had become white, especially that on the eye-brows and eye-lashes; white hairs were also numerous on the scalp. Tah-too appears to have retained the aspect of a white man undiminished, till more than a year had elapsed from the time when the first desquamation commenced, and when the black colour began to return, it was a very slow process. Numerous spots of a chestnut-brown began to appear on various parts of his body, from one-sixteenth to one-eighth of an inch in diameter. As these increased in number, they ran into patches, which were a shade or two darker than the recent spots. After some time, these patches became increased in size, and acquired a black colour. Though black, these patches were dull and devoid of that oily shining appearance usual in the skin of healthy negroes. The hairs also became black, the black patches over the surface exhibiting a mixture of black and white hairs. A cutaneous eruption, like a lichen, has been present since before the time when the chestnut spots began to appear, and at last affected the body extensively—it confined itself, however, to the white parts, disappearing whenever the natural colour had returned. The process by which the black colour was restored continued to be the same as described above, namely, the appearance first of minute spots of a circular form, which increased in number, united to form patches with irregular edges, and these again increased in turn till a great portion of the limb or of the body became continuously black. After the lapse of eighteen months from the first desquamation, when Dr S.'s observations terminated, about two-thirds of the entire surface had become black by this process. During the whole period of these changes, Tah-too's general health continued unimpaired.—Abridged from an Original Communication in the *American Journal of the Medical Sciences*, July 1846.

EXTENSIVE DESTRUCTION OF THE BRAIN FROM A GUN-SHOT WOUND, UNDER WHICH THE PATIENT SURVIVED FOR UPWARDS OF A MONTH. By Dr FORMAN.

In this case the wound was accidental, from the discharge of the patient's own gun loaded with duck-shot. Death took place 37 days after the accident, and the state of the head was then as follows:—The dura mater was found extensively detached from the inner surface of the cranium; a considerable quantity of purulent matter escaped on removing the skull-cap; there was considerable destruction of the cerebral substance adjacent to the aperture in the cranium: two sinuses were found leading, one forwards, the other backwards from this breach, and at the extremity of the latter, two flattened pieces of lead were found. In the posterior lobe of the left side there was not more than a cubic inch of healthy medullary substance, most of it being entirely destroyed, and the rest of it converted into a semi-purulent amorphous mass. About one-third of the anterior lobe of the same side, and two-thirds of the middle lobe, were in the same condition. The corpus callosum, as far as the raphe on the injured side, was destroyed; the septum lucidum and anterior part of the fornix also; the hippocami could not be distinguished; the upper half of the corpus striatum was much softened; "on scraping this off, however, the diverging fibres of the corpus pyramidale were beautifully displayed, spreading out through the grey substance of the ganglion, resembling the striated appearance of our common marine shells;" the thalamus was more healthy, but between the thalami there was no connexion; the velum interpositum and choroid plexus of the lateral ventricles were destroyed; thus the lateral and third ventricles communicated with the wound; the right hemisphere and cerebellum were for the most part healthy. Dr Forman records the symptoms, during the time the patient lived, pretty minutely. These, as being very diffuse, we cannot make room for; but we quote Dr F.'s conclud-

ing remarks, as affording a summary of the case in a physiological point of view. "To all who witnessed this case, it is a matter of great astonishment that the patient should have lived so long, preserving his mental and corporeal functions so little impaired. The right side was paralyzed only as regarded its motion, and that imperfectly. Its sensibility was very little if at all impaired. These phenomena would corroborate the conclusions, that the origin of the locomotive influence is in the anterior columns of the cerebro-spinal axis, inasmuch as they were the parts chiefly injured, while sensibility resides in the posterior. How was the abolition of the power of speech to be explained? Was it owing to the diseased condition of the cornu ammonis and temporal lobe, in which Foville locates the seat of this variety of muscular motion? In consequence of his entire inability to articulate, and the paralysis of his right arm, it was impossible to ascertain the exact degree in which he retained his intellectual faculties. Signs were his only media of communication, and these, it must be confessed, were not always the most expressive in representing the ideas he wished to convey. From the eleventh day after the receipt of the wound until the second or third before his death, he gave every indication of consciousness and reason. He recognized his friends, and took pleasure in their society. Among those who watched and nursed him, he preferred the services of some to those of others. Failing, on one or two occasions, to make known his wants, he attempted to write them with his left hand, but, after several illegible efforts, he gave up in despair. At another time a proposition was made to him in writing, *one* word in which he could not decipher, when, pointing to it with his finger to have it explained, he expressed his approbation of the proposal, and gave it his ready assent." To these few hints of his state during the period intervening between the injury and his death, we may add, that he was comatose at first; that a portion of the cranium was removed; that a fungus cerebri appeared; that he became conscious, and able to articulate, about the fifth day after the injury, but that after three days the power of articulation became finally lost. It was the right side which became paralytic; the left appears to have remained unaffected, except with muscular agitation towards the time of the fatal event.—*See the American Journal of the Medical Sciences*, July 1846.

SURGERY.

ON INFLAMMATION OF THE EYEBALL FROM GONORRHOEA. By A. JACOB, M.D., Professor of Anatomy in the Royal College of Surgeons, Dublin.

The inflammation of the eye, here spoken of, is altogether different from the destructive inflammation of the conjunctiva, which sometimes accompanies gonorrhœa, or is caused by the contact of gonorrheal matter. It is an inflammation involving the sclerotic, the cornea, the membrane of the aqueous humour and iris; and, if neglected, extending to the lens and retina, and causing destruction of the organ. It is a rare disease. As following gonorrhœa, and generally accompanied by inflammation of the joints, it falls more under the care of the general practitioner than of the oculist; some of the views entertained regarding its origin, nature, and symptoms are not free from doubt. It seems to be more an active inflammation of the cornea, than an iritis, though when unarrested, it does extend rapidly to the iris and other parts of the eye. Like the rheumatic and other inflammations, caused or modified by constitutional disease, it is liable to relapse, or will return on exposure to cold or wet, or disturbance of the general health. As to the symptoms, there is sclerotic vascularity, but not the brilliant red of iritis; it is a bluish red, as if veins, more than arteries, constituted the vascular turgescence; and it does not present so conspicuously the radiating arrangement of vessels, and pin zone characteristic of common iritis. The vascularity resembles that of unequivocal inflammation of the cornea. The cornea becomes milky or clouded, not merely at the margin, but through-

out its entire breadth, and its surface presents that rough appearance, so characteristic of inflammation of this structure. In this respect this inflammation differs from iritis; for whether that disease be idiopathic or syphilitic, all the structures composing the cornea remain perfectly transparent, except the membrane of the aqueous humour lining its internal surface, which acquires a characteristic speckled or dotted opacity. The cornea, however, in this form of gonorrheal ophthalmia, does not become pervaded with red vessels, or break into ulceration: that the inner lining of the cornea does not escape being inflamed, is proved by the occasional appearance of a speckled or dotted opacity, and the occurrence of adhesions. The state of the iris being concealed by the opacity of the cornea, it is inferred that it is inflamed by the fixed, and occasionally contracted, condition of the pupil, and its loss of dilatability by belladonna. The state of the retina cannot easily be determined, but sight is not so much diminished as in common iritis, and after recovery it is not so often permanently impaired. There is much more pain, intolerance of light, and occasional flow of tears, than in idiopathic, or in syphilitic iritis. Dr Jacob, after quoting from the descriptions and opinions of Mr Lawrence, Mr Mackenzie, and Sir Benjamin Brodie, on this form of ophthalmia, goes on to say, "That this disease arises as a consequence of gonorrhœa, in common with inflammation of the joints, is an interesting and instructive pathological fact which cannot, I believe, be doubted. A mild form of conjunctival inflammation, very different from the violent gonorrheal ophthalmia, appears to be a consequence of it also. So much so, that they might be looked upon as secondary symptoms of this form of syphilitic disease. At the same time, it must be admitted, that it sometimes takes place unaccompanied or preceded by true syphilitic gonorrhœa, and only in common with inflammation of the joints and urethra, in consequence of gout or rheumatism. Purulent discharge from the urethra, with scalding pain in making water, and chordee takes place; and this inflammation of the eye, with inflammation of the joints, occurs simultaneously or consecutively; but it is sometimes difficult to determine whether all these are but symptoms or consequences of the one general or constitutional disease, or whether the inflammation of the joints and eye, are consequences of the disease of the urethra." Again, he concludes, "Upon the whole, it may, I think, with safety be admitted, that, in certain gouty or rheumatic constitutions, inflammation of the urethra, joints, and eyes takes place without any true contagious gonorrheal disease: and that, on the other hand, inflammation of the joints and eyes, which might not otherwise occur, arises from ordinary gonorrhœa. Syphilitic iritis, or inflammation of the eye, is evidently as much a usual secondary form of venereal disease, as cutaneous eruptions, sore throat, and disease of the periosteum and bones; while the inflammation of the eyes and joints, following gonorrhœa, seems to arise in particular constitutions only." Dr Jacob afterwards proceeds to speak of the treatment. We must content ourselves with a simple enumeration of the remedies out of which a choice is to be made. Blood-letting, cupping, leeches, mercury given freely, or only as an alterative, or calomel and opium, or Plummer's pill, colchicum, iodide of potassium, as to the extent of ten grains three times a day, especially when the inflammation is of a languid character; and where there is feebleness of constitution, or a scrofulous tendency, cinchona, or sulphate of quinine; oil of turpentine, gualacum, sarsaparilla, antimonials, the local use of belladonna, blisters, in the advanced stages, warm fomentations, as the poppy fomentation, the warm bath; in refractory cases, change of climate.—*Abridged from an original communication in the Dublin Medical Press, Aug. 26, 1846.*

GONORRHEAL OPHTHALMIA.

DR HARION, director of the ophthalmic hospital of the Belgian army, in a pamphlet which he has lately published on this subject, gives the following as the result of his observation:—"In all cases of ophthalmia produced by

inoculation of the muco-purulent, urethral, or vaginal discharge, in adults or in infants, there exists invariably, at the same time, an enlarged gland in front of the ear, varying in size from a pear to a hazelnut."

According to the author, this is a diagnostic sign between gonorrhœal and catarrhal ophthalmia; and ophthalmia without such a glandular enlargement is, from his experience, not gonorrhœal, even though the patient should be actually suffering at the time from blennorrhagia.—*Annales de Therapeutique*, May 1846.

DISLOCATION OF THE STERNAL END OF THE CLAVICLE BACKWARDS.

A CASE of this rather uncommon accident is given in the Archives Medicales du Midi. A sailor was brought into the Hotel Dieu of Marseilles, having been crushed between two ships. The head of the right clavicle had been forced backwards, and could be felt by the finger behind and below the summit of the sternum. The usual distress, arising from congestion of the head and difficulty of breathing, was not present. The method of reduction was as follows:—

"The patient was laid on the sound side; one assistant placed his joined hands in the axilla, as if to carry the shoulder outwards and backwards; while a second assistant, at the opposite side of the bed, extended the forearm at a right angle on the arm. The arm and shoulder thus formed a lever, whose fulcrum was the hands of the assistant placed in the axilla; consequently, the force exerted by the second assistant was communicated by means of the fulcrum, from the arm to the shoulder, and from the shoulder to the sternal extremity of the clavicle, which was thus disengaged from beneath the sternum; at the same time, the surgeon directed the sternal extremity of the clavicle towards the articular surface of the sternum with the index finger and thumb of each hand. The reduction was thus effected quickly, but not without the use of considerable force. The displacement recurred spontaneously twice, but the third time the reduction was permanent."—*Gazette Medicale de Paris*, Aout 22, 1846.

In a case of this dislocation, where the pressure of the head of the clavicle on the trachea caused excessive dyspnœa, we pursued the following method of reduction, which appears to us simpler, and probably more effectual than the above.

An assistant standing behind the patient grasped both shoulders, and placing his knee between the scapulæ, we directed him to pull the shoulders suddenly backwards, whilst with the forefingers and thumbs we drew the clavicle forcibly forwards at the same moment. In this way reduction was instantly effected, with immediate and great relief to the patient.

TREATMENT OF SUBCUTANEOUS NÆVI.

SIR Benjamin Brodie recommends the following method of operating in such cases:—A small and narrow knife, the eighth of an inch in breadth, is introduced into the centre of the nævus, and moved about in various directions, so as to cut to pieces, as it were, its vascular structure. A probe coated with nitrate of silver is then passed into the puncture, and moved about, so that wherever the lancet has divided the blood-vessels, the caustic may penetrate also. The probe is coated with the caustic by dipping the blunt end of it into nitrate of silver melted in a platina or silver spoon. Inflammation and sloughing follow, and obliteration of the vessels in the centre of the tumour. At the separation of the slough, a slight purulent discharge continues for a short time, when, if the tumour has been small, it will probably be cured. If the tumour should be of a larger size, a repetition of the treatment will be necessary. By this treatment, the tumour is destroyed without destruction of the superjacent skin, which in nævi of the face or other exposed parts, where

disfigurement is particularly to be avoided, is an object of much importance.—*Lectures on Pathology and Surgery.*

CASE OF TRAUMATIC TETANUS SUCCESSFULLY TREATED. By WILLIAM GILLARD, Esq., Totness.

DECEMBER 28, 1838.—R. L——, aged 20 years, a healthy young man, received the whole charge of a gun in the front of his right thigh, about midway between the hip and the knee. I saw him within an hour of the accident; the wound was nearly circular, about two inches in diameter, with some shot, portions of wadding, and a piece of his cloth trowsers protruding from it, but so firm, that I did not consider it prudent to remove them by force, the bone being uninjured. I ordered him to bed, to be kept quiet, and have a cold lotion constantly applied. The patient appeared to be doing well until January 28th, when I was called to him in the afternoon. He had trismus and opisthotonos to a great extent; pulse 80, tense and thrilling. I bled him, without regard to quantity, until syncope was produced, and ordered him five grains of calomel and half a grain of tartarised antimony every four hours, with one ounce of aperient mixture; the poultice to be continued, and the cold lotion applied as before.

19th, *Mane*.—Had a restless night; pulse 80; bowels moved during the night; spasm continues. Bled him as before. Repeat the medicine, and an enema, with two ounces of spirits of turpentine, and one ounce of castor oil, was ordered.

Vespere.—Altogether a little relieved, and pulse softer.

20th, *Mane*.—Had some sleep; bowels freely opened; pulse 80; but more compressible. Half a grain of tartarised antimony, and six grains of camphor, with one ounce of aperient mixture, every four hours.

Vespere.—Pulse harder; spasms returned. Bled him as before.

21st, *Mane*.—Restless night; spasms continue; pulse 80; wound looking well. Lotion continued; bleeding repeated, and aperient mixture every four hours, with three grains of calomel, half a grain of tartarised antimony, and four grains of powdered scammony.

Vespere.—Quieter and more comfortable. Bowels moved.

22d, *Mane*.—Night restless, with occasional spasms; pulse 80; bowels acted on repeatedly during the night. Bled him as before.

Vespere.—He was altogether relieved. Pulse 96, soft and compressible; skin moist, having been from the 18th dry and hot; free from spasms, and inclined to sleep. I now ordered him one grain of opium and three grains of camphor, in a pill, every three hours, with a simple saline draught in a state of effervescence; and, as he continued to improve, I followed the same plan of treatment on the 29th, with very slight occasional alteration, and now and then an aperient draught. The cold lotion was used on the 24th. On the 27th the last shot, and a large piece of the trowsers, came away. On the 31st I applied a bandage.

February 8th I ceased my attendance, as he was quite well. He has never since felt the slightest inconvenience.—*Provincial Med. and Surg. Journal.*

PATHOLOGY AND PRACTICE OF PHYSIC.

A CASE OF OBSCURE ABDOMINAL TUMOUR, by WALTER COOPER DENDY, Surgeon to the Royal Infirmary for Children, London, &c.

The patient in this case was a man of 31 years of age, with rather pale complexion, and of slender frame. He had several times suffered in early life from tumefaction of the left side, which speedily yielded to aperients. Four years before the attack here particularly described, he had had a tumefaction of a

similar character in the left side, which, after continuing for three weeks, began gradually to subside during the use of drastic purgatives, and after a very copious albuminous deposit in the urine. Previously to this attack, he suffered from slight irritation of the bladder, for which he took large doses of nitrate of potassa.

The attack, now to be described, followed severe influenza, and came on while he was under treatment by large doses of nitrate of potassa and smart purgatives, for a recurrence of feverishness and catarrhal symptoms, brought on by damp clothes. A considerable fulness was first observed in the left side "of the abdomen, which in sixteen hours reached from the margin of the ribs to Poupart's ligament, extending across the umbilicus, projecting into the loins, and resting, as it were, on the crista of the ilium." The tumour measured about seventeen inches across; it felt solid and doughy; it was not painful on pressure, but caused some impediment to breathing. The pulse was natural, the tongue coated, the appetite deficient; there was a copious deposit of lithates from the urine, but no particular indication of a morbid condition. After two days more a severe neuralgia suddenly supervened in the track of the lumbar plexus, and immediately over the origin of the crural and obturator nerves, from the second and third lumbar. This neuralgic pain came in paroxysms and was very severe. The tumour became larger and lobulated, and occasionally underwent slight changes of form, but with these exceptions it continued upwards of a month before it began to subside. At its greatest extent, it measured nearly three feet in circumference. The neuralgic paroxysms continued severe for nearly the same period, varying somewhat in their seat as to the sacral plexus and sciatic nerve, and involving the cutaneous nerves. The pulse during this period ranged from 70 to 85, being increased during the neuralgic paroxysms to 95. The nights were restless, unless on some occasions when anodynes afforded relief. There was much emaciation. The stools, procured by medicine, were hardly feculent in the earlier part of the attack; about the sixth day there were three or four fluid evacuations, of a blackish grumous character, without feculent admixture. About the fifteenth day the evacuations are described as somewhat more feculent, but with numerous streaks of coagulated mucus, which might have been mistaken for grape-skins; and about the twentieth day the black matter and inspissated mucus are again noticed as evacuated from the bowels. After this time the alvine discharge is more natural, and about the time when the tumour begins to decline it becomes entirely feculent. The urine, during the period referred to, varies but little, depositing lithates, and being found on examination to contain no pus or albumen; but about the thirty-third day, when the tumour was first observed to decline, the urine appeared turbid for the first time, "depositing evidently globules of pus of a light dirty yellow, forming about a moiety of the excretion. They mix with the urine on being shaken, but there is no solution: heat produces little change; liquor potassæ coagulates the pus in firm long strings." During the next fifteen days, the tumour gradually subsided, with slow improvement of the health, which, by a short residence in the country, was completely restored. The treatment throughout consisted of purgatives and anodynes, with emollient applications to the tumour. A flexible tube, thirty inches long, was occasionally introduced into the intestine, for the purpose of injecting warm water.—*Transactions of Medical Society of London*, vol. 1, new series, 1846.

ANALYSIS OF THE URINE, BLOOD, FÆCES, AND VOMITED MATTERS, IN CHOLERA SPORADICA. By Dr HELLER.

A case of sporadic cholera, which proved fatal, having come under the notice of Heller, a careful examination was made by him of the blood and of the several excretions voided during life. The results of this examination are of con-

siderable interest, inasmuch as hitherto but few, and these not very satisfactory, analyses of the various animal fluids in this disease have been published. The patient was a robust man, 30 years of age; he was attacked suddenly with severe and continued vomiting and excessive diarrhoea, which continued until his death on the fourth day from the commencement of the disease.

The quantity of *urine* secreted was exceedingly small—not more than half an ounce in twenty hours. It was examined three different times, and the results of each analysis were the same. It was of a deep golden-yellow colour, and possessed a faint but very peculiar odour. When voided, it was tolerably clear, but shortly deposited a small quantity of flocculent mucus, and a fine sediment of earthy phosphates. It had a strong acid reaction; specific gravity 1018. The addition of nitric acid detected a large quantity of a peculiar animal matter, to which the deep colour of the urine was obviously due. When first the acid was dropt in, an intense violet-red colour was produced; this, on shaking, was changed to a dark carmine red, and then to a dark violet, which remained. When a large quantity of acid was added, the colour assumed was a dark brown, which was permanent. These peculiar changes in colour produced by nitric acid, were probably due to the presence of altered bile-pigment in the urine. Had the pigment been ordinary bilifulvin, a green instead of a red colour would at once have been struck on the addition of the acid.¹ Another effect produced by nitric acid was the evolution of a large quantity of gaseous carbonic acid. No albumen was detected. The addition of ammonia caused an almost entire disappearance of the earthy phosphates, and changed the golden yellow colour of the fluid to a brownish red.² The addition of a salt of silver to the acidulated urine showed that almost all the chlorides had disappeared. When the same salt was added to the non-acidulated urine, a precipitate was formed, which was soluble in nitric acid with an abundant evolution of carbonic acid gas. A salt of baryta detected very little of the sulphates, but also gave rise to an abundant disengagement of carbonic acid. On boiling, all the carbonic acid disappeared; which proved that the acid existed free in the urine, and that it was in all probability the chief cause of its high acidity. 1000 parts of the urine contained 955·67 parts of water, and 44·33 parts of solid constituents. Of the latter, 10·50 consisted of urea (12·8 being the average quantity in health), about 0·10 of uric acid, 27·32 of extractive matters, together with a large quantity of the peculiar animal substances above described, and which most probably originated from bile, 6·41 of fixed salts, which consisted in great part of phosphate of soda and sulphate of potash. With regard to the uric acid, it should be remarked that the crystals of it thrown down by the addition of hydrochloric acid had a square form, and were of a beautiful deep blue colour. When viewed by reflective light, these crystals presented a brilliant violet-red colour, with a metallic lustre, like that of titanium; by transmitted light, they appeared of a beautiful blue colour throughout, and formed a fine layer over the violet-coloured urine. This peculiarity of the uric acid crystals obviously resulted from their being combined with the pigment above described. For, in addition to the previously mentioned reasons for regarding this pigment as somewhat different from ordinary bilifulvin, and as probably a modification of it, it may be stated that the crystal of uric acid, deposited through the action of hydrochloric acid from urine containing even a very large quantity of bilifulvin, as in cases of intense jaundice, are never blue, but always yellow. The almost complete absence of chlorides from the urine is also very remarkable, since these, especially chloride of sodium, appear to fulfil an important part in the system. Lastly, the large quantity of free carbonic acid contained in the urine is a highly curious circumstance; true, it is often found largely in the urine, in combination with ammonia, but it is then a product of the decomposition of urea, and is coincident with an alkaline con-

¹ Vide Medical Gazette. New Series, Vol. i. p. 1089.

² Loc. cit. p. 1089.

dition of the urine ; but in this case there was no carbonate of ammonia present, and the urine possessed a highly acid reaction.

The blood which served for analysis was obtained from the carotid artery after death. It was generally fluid, though coagula were found here and there in the blood-vessels, and especially in the cavities of the heart. It was very dark, yet strongly coloured, and of a tolerably thick consistence. The quantity of fibrine was very small. Beneath the microscope the blood corpuscles appeared indented, and many fat globules were observed. The serum, after the subsidence of the red corpuscles, was of a dark yellow colour, and an alkaline reaction. It contained a full quantity of Albumen, but not a trace of bilifulvin could be detected. The quantity of fat was large ; that obtained by ether and alcohol was perfectly saponifiable, and contained no cholestérine. When examined for urea, by Simon's process, it was found to contain a very large quantity of this substance. This was manifestly the result of the great suppression of urine. The proportion of fixed salts in the blood was much increased, especially in the quantities of the chlorides of sodium and of potassium, which were absent in so marked a degree from the urine. A similar circumstance had been before noticed. The fæcal evacuations, which were very abundant and frequent, were watery, and of a turbid whitish, gruel-like appearance ; the fæcal odour but seldom perceived. They had an alkaline reaction, and contained albumen. By nitric acid their colour was changed to a deep brownish red, which passed into violet, exactly resembling, therefore, the changes produced in the urine by the same re-agent ; ammonia also produced here the same dark brown red colour as it did in the urine, and regarded as altered bile-pigment, was present also in the fæcal evacuations. Simon, also (as well as others), mention this peculiarity of the bile in the fæces of cholera, being frequently coloured red instead of green by nitric acid.* Crystals of ammonia and phosphate of magnesia were also found in the fæcal evacuations in this case.

The matters vomited, during the progress of the disease, were very watery, and of a greenish or yellowish green colour, and had a slight acid or neutral reaction. Bile was the most essential ingredient, and it reacted towards nitric acid as ordinary bilifulvin would, the first change in the colour produced by the acid being green.

In conclusion, it would seem as if in this disease a peculiar change or decomposition was undergone by the bile, and it would be important to ascertain whether a similar alteration of this fluid takes place in other cases.²—*Heller's Archiv. and London Medical Gazette.*

ANALYSIS OF THE URINE IN DROPSY AFTER SMALL-POX. By Dr HELLER.

The patient was a young girl, who, after the subsidence of a severe attack of variola, became the subject of general anasarca. The urine was of a pale fawn colour, turbid, and an acid reaction, and deposited an abundant coarse-grained sediment ; possessing therefore most of the general characters of the urine in Bright's disease. A microscopic examination of the sediment detected heaps of urate of ammonia, intermixed with which were numerous colourless crystals of uric acid : cylindrical tubules of epithelium from the canals of Bellini, to which also adhered crystals of uric acid ; also pus cells, blood corpuscles, and pavement epithelium. The urine contained also a quantity of uroxanthin. Its acid reaction remained even after it had been kept four days in a warm room, at the end of which time, numerous crystals of uric acid were found deposited on the sides of the vessel. Its specific gravity was 1012. On the addition of nitric acid its colour was changed to violet, and a quantity of albumen was

¹ Animal Chemistry, Dr Day's Translation, vol. ii. p. 383.

² In a note, Heller mentions having subsequently met with a case of morbus Brightii and peritonitis, in which the same altered bile-pigment, as above described, was found in the urine.

thrown down in the form of a violet-coloured precipitate. On chemical analysis, 1000 parts of the urine were found to consist of water 961·80, solid constituents 38·20. Of the solid constituents 10·53 parts consisted of urea, 0·55 of uric acid, 6·80 of albumen, mixed with colouring matter of the urine, and with a small quantity of hæmatin, 17·76 of extractive matters, and 2·56 of fixed salts. Among the salts there were only traces of the chlorides found. As the patient recovered, the urine gradually resumed its normal characters; the specific gravity rose, whilst urea and the salts, especially the chlorides, gradually increased in quantity; though, for long after, the urine contained a large amount of albumen. The chemical and microscopic characters of the first specimen of urine examined in this case were very similar to those presented by urine in Bright's disease, with the exception of urea being in about its normal proportion,—which according to M. Becquerel is 10·366 in 1000 parts of the urine of women.—*Hellers' Archiv. and London Medical Gazette.*

DEATH FROM LIGHTNING.

During a storm which occurred on the 5th of August, in the Canton of Levroux, a group of labourers were struck by the electric fluid. Four were killed on the spot, and five or six severely wounded. It was remarked that the individual whose body bore the most extensive marks of injury had worn a goat skin. There were the most severe lacerations about it; and, in three hours after death, it became as rigid as a bar of iron. In most of those who were struck, the skin was reddened; but the clothes bore no marks of burning. This fact shows that the opinion that the bodies of persons who have been killed by lightning, do not become rigid after death, is incorrect.—*Gaz. Méd. and London Medical Gazette.*

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

CESARIAN OPERATION SUCCESSFUL TO BOTH MOTHER AND CHILD. By DR BUCH of Strasburg.

A female, ætat. 35, a rachitic dwarf, 3 feet 5½ inches in height, born of healthy parents, but having been early abandoned to the mercenary cares of a nurse, was suckled for a period of only two months. Her health was good until she was three years of age, when she became rachitic to an extreme degree. She was eight years old before she became again able to walk. Since that period she has ceased to grow; her voice is almost that of a child, and her intellect is but little developed. She commenced to menstruate at her nineteenth year. The shape of the legs, vertebral column, and pelvis, are much modified by rickets. The spine presents a slight convexity, from the left to the right, of the cervical region, and from the right to the left in the dorsal region; in the lumbar region it is curved from behind forward. The pelvis has a strong inclination from the right to the left, and from behind forward. When she came to consult me, she was in the seventh month of pregnancy. At that time progression was difficult to her, her respiration was impeded, and her abdomen very prominent and distended, and hanging down to the middle of her thighs. The bruit de soufflet was heard to the left and in front, and the foetal heart to the right. The pelvimeter applied to the last lumbar vertebra, and the symphysis pubis gave a space of 14 millimetres (1¼ of an inch). The sacro-vertebral angle could be easily reached by the fore finger. During the latter months of her pregnancy, her difficulty of breathing compelled her to pass the greater part of her time on her belly, knees, and elbows.

On the 24th Nov., 11 P.M., labour commenced; next day, at 7 A.M., the os uteri very high up, and almost concealed by the sacro-vertebral angle, com-

menced to dilate ; the foetal head pressed strongly against the brim, but could not engage in it, although the uterine contractions were very powerful ; at 8 the membranes ruptured ; at 2 p.m. the head was still in the same position, the os uteri largely dilated, and the patient's strength beginning to be exhausted ; the foetus was ascertained by auscultation to be alive. It was determined to perform Cæsarian section. An incision was made in the median line from the umbilicus to within three fingers' breadth of the pubis ; the peritoneum was slit up by a probe-pointed bistoury guided on the finger ; there was no hemorrhage. The uterus was then laid open to an equal extent with the abdominal parietes ; at the upper part the operator came upon the placenta. Dark blood escaped in abundance from the uterine sinuses, and from the placenta, which was partly detached, and projected between the lips of the wound ; it was quickly replaced, the membranes incised, and at the moment when a small quantity of liquor amnii escaped, the operator plunged in his hand, and extracted by the feet a living female child.

The uterus then contracted powerfully upon itself, making a rotation from left to right, and thus the incision which was in front became lateral. The placenta being partly detached, and engaged in the opening, was seized and easily extracted. Almost immediately the hemorrhage ceased. A seton was placed in the interior of the uterus, and allowed to hang out at the lower angle of the external wound. For the first six days the patient suffered a good deal under the usual symptoms of peritonitis. The ligatures were removed, and the wound found to have adhered by first intention throughout, except at the point where the seton was. Up to the seventeenth day the patient continued in a critical state. Œdema of the left foot appeared, and the internal saphena vein was tender throughout its whole extent ; the œdema was only trifling the first day, but in 48 hours it involved the whole limb, but the vein did not become more tender. On the thirtieth day after the operation the patient had gained considerably in strength ; the menses then appeared, and continued three days—this gave her great relief. From the whole surface of the uterus which was visible at the inferior angle of the abdominal wound, there exuded a sanguinolent fluid. Two months and a half after the operation the patient was able to follow her usual occupation, and was presented to the Medical Society of Strasbourg.—*Encyclographie Médicale*, Mai 1846, p. 129.

GLASS PESSARY BROKEN IN THE VAGINA.

Was called early this morning to visit Miss R. E. The patient is a maiden lady of about forty, and has been troubled for several years with prolapsus uteri, and for a long time has been obliged to wear a pessary. Those used have generally been of the gum elastic kind, which after being worn for two or three months, it was necessary to remove to cleanse, as the secretions which gathered about them became too irritating to bear. On this account, after attending to the removal and introduction of the instrument several times, I recommended the use of the *glass* pessary, as less irritating, less liable to collect the secretions, and more durable. Accordingly I procured and introduced one of size No. 2, Aug. 21, 1845. It answered the end designed, and gave rise to no inconvenience or trouble till this date. On arriving at her residence, she said she had not sent for me because she was sick, but because she was "scared." Inquiring the cause of her alarm, she told me that the pessary had broken—that while standing at the window, doing nothing, she heard a noise, and that any effort since had caused pain as of something pricking her. She could not account for it, unless, as she humorously remarked, it was *frosty* !—it being a cold morning. On examination I found it broken, indeed, into a great number of pieces. Parts of the periphery were *in situ*, and all the parts were at the upper part of the vagina. I found I had an unenviable task before me—the extraction of these sharp angular and pointed pieces of glass from the vagina, lined with a delicate mucous membrane, lying in rugæ. I had some

doubt of the feasibility of the operation, and some apprehension for the result. But I commenced operations, and after two hours and a half of diligent and most careful manipulations, I succeeded in extracting every vestige of the glass. At least, several examinations afterwards, in several positions of the patient, did not discover the least particle remaining. Notwithstanding the care used, however, the vagina was unavoidably somewhat lacerated, so that a little hemorrhage was produced. Perhaps a tablespoonful of blood accompanied and followed the operation. My own fingers were also cut a little. The central piece, which was entire and averaging $1\frac{1}{2}$ inch in diameter, having two rims, of which the edges were very jagged and pointed, was the most difficult to extract. Fearing that severe inflammation might ensue, I prescribed the antiphlogistic treatment and regimen, and an opiate and astringent injection to be frequently thrown into the vagina.

The number of pieces of glass extracted was fifty, of all shapes and angles; the patient made a perfect recovery.—*Medical Examiner, Philadelphia*, March 1846, and *Boston Medical and Surgical Journal*.

CASE OF INVERSIO UTERI, BY DR MITCHELL.

I was called in great haste to Mrs S., whom I found in charge of a medical practitioner, who stated that she had been delivered by him of her second child after a labour of eight hours' duration; the child was born naturally, and the placenta expelled in half an hour after its birth; that as he was about leaving the house she complained of acute pain in the back and groins, with a sensation of fulness about the vagina, and as if something had given way in her abdomen. This was followed by hemorrhage so great in quantity as to excite serious alarm: to this succeeded a number of fainting fits, from which it was difficult to arouse her. On my arrival two hours after delivery, I found that she had just recovered from one of these fits. The bed was saturated with blood; the patient was breathing hurriedly, with occasional gasping and deep sighs; the pulse was small and thready, 125 in a minute, and the heart's action greatly flurried; the prostration of strength and collapse were so complete as to lead me to suppose that rupture of the uterus had taken place. Large quantities of hot punch had been given before my arrival without any effect. On applying the hand to the hypogastrium, the uterus could not be felt, which induced me to make a vaginal examination, when I at once discovered that the uterus was inverted in the third degree. The tumour was very sensitive to the touch, and she complained much when it was pressed. Forty minims of laudanum were given, and having oiled my right hand, I proceeded to reduce the tumour, which, with some little trouble, I succeeded in doing, by pressure at first upwards and backwards, and then upwards and forwards, in the axes of the pelvis, when I found it went up suddenly, and on following it into the uterus, I had the gratification to find that the uterus contracted firmly upon my hand. There was no bleeding of any consequence afterwards, and by continuing the use of the stimulants, she gradually revived. This lady continued in a very delicate state for some time, but eventually recovered perfectly.

The gentleman who attended the patient during labour positively assured Dr M. that no undue force had been applied to the cord.—*Provincial Medical and Surgical Journal*, September 1846.

CONGENITAL ENCEPHALOCELE. By M. SERRES.

M. Serres communicated a very curious case of congenital encephalocele. A child was born 25th May 1846, with the following deformity:—The head resembles a shapeless mass, there is no cranium, the parietal and frontal bones and a part of the occipital bone are absent, and in their place exists a tumour which appeared to contain the brain. This tumour consists of a membrane of a fibrous aspect, and on its left side is another tumour which seems to contain

the cerebral matter appertaining to the posterior lobe. Behind those tumours, which are moveable and compressible, is seen the nucha perfectly formed, and which should contain the cerebellum, the annular protuberance, and the bulbous portion of the medulla elongata. In front of and below the tumour is the rudiment of the face; the upper jaw is very imperfectly developed; the palatine vault is fissured, as is also the velum palati; the nose is slit, flat, deviated to and more developed on the right side. On the left side there is but a rudiment of the nose. The palatine vault is replaced by a portion of membrane adhering on one side to the bones, on the other to the cerebral tumour. The mouth is complete, except that the upper lip presents a very wide hare-lip. The tongue is entire, the lower jaw is fully developed, and its motions are natural; the orbits are partially deficient, especially the right one; the eyes scarcely exist; the globes of the eyes are atrophied; the left eye only is visible.

The rest of the body is perfectly formed. All the functions were regularly performed. After two days the cerebral tumour became hot, the child commenced to be convulsed, and all the symptoms of an inflammatory affection came on, which proved fatal the sixth day after birth.

The dissection brought several curious facts to light. The bones of the cranium were wanting, and yet traces were found of organization of the skin, of the cellular tissue, of the envelopes of the brain, of the brain itself. The imperfection of the brain indicated an arrest of development which ceased at the central parts of the organ. The circumvolutions of the brain were absent, but the cerebellum, the annular protuberance, and rachidian bulb were perfectly distinguishable. The origins of the nerves were distinct, the arteries were ill developed, and, as it were, atrophied at the summit of the tumour.

Injection of the arteries clearly showed, what is indeed generally admitted, that where there is atrophy of organization, there is also vascular atrophy. The vertebral, the posterior, and middle meningeal arteries, were more developed than the anterior meningeal arteries.—*Dublin Medical Press*, Sept. 2, 1846, from *Proceedings of Royal Academy of Sciences of Paris*.

FORENSIC MEDICINE AND MEDICAL POLICE.

CASE OF CONCEALED DELIVERY. By S. C. SEWELL, M.D., Lecturer on Materia Medica, University M'Gill College.

On the 16th November 1845, at a quarter past one P.M. I was called to Mr K.'s, to see his servant, Bridget Cloone, ætat. 40, who was said to be suffering from colic and pain in the back. Laying my hand on the abdomen, I perceived that she was about seven or eight months pregnant. On my charging her with the fact, she denied it stoutly, said she had menstruated two months before, and finally, finding that she made no impression on my opinion, she declared, in the most solemn manner, "that whatever was inside of her, it was no child." The reason for this statement will appear presently. I had her removed to the University Lying-in Hospital, whither I went in an hour after, and finding that the physician in ordinary had not arrived, at the matron's request I examined her, per vaginam, and found the os uteri dilated and the membranes protruding; presently I detected what appeared to be a cord, lying coiled in the upper part of the vagina, and on pulling at it, a free extremity came down, but not to the os externum. There were no clots of blood in the vagina. At half-past five I returned, and found Dr M'Culloch in attendance; the child just being born by the feet, and the woman still persisting that there was no child. The child was feeble, but not at all ensanguined. It survived a few hours. To the placenta was attached two cords; that of the first child had evidently been divided with scissors from the appearance of the cut surface. Information was given at the police office, that a new-born child had

been concealed, for the woman denied that any previous birth had taken place. On searching the bed-room which she had occupied at her master's house, the bed bore evident marks of a delivery having taken place, and on searching her trunk, the body of a male child was found, underneath the clothes, which had been very carefully smoothed over it. Care was taken not to disturb the position of the limbs, and the body was removed to the police station-house.

An inquest was held on the following day, when Dr M'Culloch and I were directed to perform the autopsy, of which the following is the result:—The body was fifteen inches long, and weighed two pounds fifteen ounces avoirdupoise. The body was not exsanguined; there was no fracture of the skull; the conjunctiva was intensely injected; the cornea hazy, and pupil open.

The body was found on its right side in the box, and was deposited on the same side in the station-house; in consequence, livid patches were observed on that side from the gravitation of the blood.

External Examination.—Several marks of injury were found as follows:—One from the right nipple to the point of the shoulder, half an inch broad; one from the right side of hyoid bone to mastoid process of right temporal bone; one a little lower, and to the outside, which terminated at the back of the neck; the fourth commencing to the outside again, went to the middle of the superior costa of the scapula, the hands were turned up to the head, the right one to the right ear. The nails were formed. The umbilical cord had been divided nine inches from the body, evidently with scissors, and there was no ligature on it. Meconium was protruding from the anus; the testicles had descended; the thighs were flexed on the abdomen, and the legs on the thighs.

Internal Examination.—The marks of injury before referred to, were cut into, and the cellular tissue underneath was found to be red with extravasated blood. An incision was made through the lower lip, and down to the epigastrium, in the mesial line. On dividing the lower lip, the tongue was found protruded more than a line beyond the gums. On opening the thorax, the following observations were made:—The apex of the diaphragm was opposite the fifth rib; the lateral portions were well descended; the lungs were of a uniform bright scarlet colour, occupying the lateral portions of the thorax, and touching the diaphragm below, but not filling the pleural cavities entirely. The heart and great vessels were nearly in the mesial line, and the cavity of the entire thorax was large for the size of the child; the lungs crepitated on pressure; the lungs, heart, and thymus gland were then removed, and, on being put into water, floated; crepitation occurred under the scalpel; a portion of lung was squeezed under water, and bubbles issued from every part of the cut surface; the same was observed on squeezing a portion in air; nearly half of each lung was removed, and the remainder, with the heart and thymus still attached, was cast into water, when the mass again floated; portions of lung floated in water; the cavities of the heart contained dark blood, slightly coagulated; foramen ovale was closed, but not obliterated.

INFERENCES.

- 1st, The child had breathed freely.
 - 2d, The marks of injury on the right breast and neck were inflicted during life.
 - 3d, They were, in all probability, occasioned by the left hand of an adult grasping the neck of the infant.
 - 4th, The protrusion of the tongue and position of the hands are probably referable to strangulation.
 - 5th, Death was not caused by hemorrhage from the cord.
 - 6th, The child was between seven and eight months of utero-gestation.
- The rest of the evidence went to show that Bridget Cloone had been a widow for some years; that she had carefully concealed her pregnancy; that she had

taken powerful emmenagogue medicines, prescribed by an irregular practitioner, up to the day of delivery; and that she was seen, half an hour before my arrival, to get out of bed, stand by its side, take a pair of scissors from under the pillow, and cut something under the bedclothes.

The coroner's jury brought in a verdict of "Wilful Murder." The bill of indictment founded thereon was thrown out by the grand jury. She was then indicted for concealing the birth of an illegitimate child, convicted, and sentenced to six months' imprisonment.

The above is an exceedingly important case in the annals of Medical Jurisprudence, and cases of the kind are very rare. Under the hope of escaping from the consequences incident to an actual infanticide, of which there is the strongest probability, this woman *persisted to the last that she was not pregnant*, little anticipating that a second child was to furnish its quota of evidence of the birth of a former one a few hours previously. The case furnishes a striking proof of the fact, that a woman may be delivered of one child, of which she may criminally dispose for the purpose of concealing its birth, and may be afterwards delivered of a second, the life of which may be preserved.—*British American Journal of Medical and Physical Science*, July 1846.

ON THE NON-EXISTENCE OF THAT SPECIES OF MORAL INSANITY TERMED PYROMANIA.
By PROFESSOR CASPER.

The author, in consequence of his official position, has for a long series of years had more opportunity than any other physician to examine into a number of cases of youthful incendiaries, and to come in contact with, in a judicial capacity, as well fire-raisers as criminals of all kinds. In consequence of his experience, he has arrived at the conviction, that the forms of insanity termed pyromania, kleptomania, and homicidal mania, have in reality no existence. The following circumstances have, according to him, given rise to the admission of these forms of insanity, 1st, the humanity of physicians bestowed in an improper place, or in other words, the efforts made by them to save criminals from the punishment they deserve, by affirming them to be rendered irresponsible for their acts of disease. 2d, The extreme severity of the statutes against the crime of incendiarism. 3d, The want of personal practical experience in many medical jurists and other officers. 4th, The carelessness and superficial character of the observations made by these persons; and, *lastly*, and more especially, the opinion enunciated by the scientific deputation of the medical profession for August 1824, and the ministerial rescript founded upon it for the year, which enjoins the Prussian legal authorities, in the cases of young incendiaries, to bear in mind the occasional existence of the impulse to fire-raising, recently acknowledged by physicians, whereby in Prussia, at least, examinations into cases of pyromania have become very much increased. The author founds his assertion, that pyromania has no existence, on the fact that incendiarism, by young persons, occurs comparatively exceedingly seldom. According to the Prussian Gazette, which contains a report of the number of judicial investigations against young persons, for the years 1831-36, and 1837-42, the proportion of incendiaries to the population was—

From 1831-36..... 1 in 93,478

— 1837-42..... 1 ... 105,281

The proportion of young thieves was, for the same periods, respectively 1 in 2829, and 1 in 2285. Thus, in round numbers, the thieves were 1 in 2000, and the fire-raisers 1 in 100,000; *i. e.* the thieves were to the fire-raisers ::50 :1. The author considers that if arson and larceny, committed by young persons, were a species of monomania, the one should occur as frequently as the other; but if they are the results of criminal motives, theft (the acquisition of some coveted object), as it presents to the youthful mind, if unrestrained by moral principle, a much more intelligible and obvious motive to action than the

desire to burn, ought to be much more frequent. Finding this to correspond with what actually occurs, he concludes that there is no such disease in nature as cleptomania or pyromania.

POISONING BY SULPHURIC ACID.

MM. Blondlot, Braconnot, and Laroche, of Tours, were directed by the authorities to institute a chemical examination respecting the suspected poisoning by sulphuric acid, of a child two months old. The substances to be examined consisted of—1. A bundle of linen. 2. Several boxes containing several portions of the dead body of a child: a portion of the stomach, the tongue, and a portion of the mucous membrane of the mouth and pharynx, parts of the small intestine, the lungs, the heart, the larynx, the bladder, and the kidneys.

The linen which had appertained to the child was found to be strongly impregnated with free sulphuric acid.

No alterations were discoverable on the tongue, on the pharynx, or in the œsophagus, which justified the presumption that those parts had been in contact with any corrosive agent. Those parts presented no stain, no alteration, no slough, no discoloration of the mucous membrane. The lesser extremity and the great curvature of the stomach presented a natural appearance, except that there existed at the lesser extremity of the stomach two slight ulcerations almost contiguous, one equalling a franc in size, the other somewhat larger, one oval, and the other round; they were quite similar in appearance, being reddish and somewhat fungous; on examining them with a lens the mucous membrane was found to be partly destroyed, and what remained of it was studded with floating filaments which adhered pretty firmly to the subjacent tissue.

The portion of small intestine examined was healthy. The heart, the lungs, and the liver, presented no appreciable alteration, but were in an advanced stage of decomposition. The parts were washed several times with tepid distilled water, and the resulting liquid did not redden litmus, and gave a very feeble precipitate with chloride of barium. The gentlemen charged with the examination reported—1. That the linen was strongly impregnated with free sulphuric acid. 2. That none of the portions of the child which they had examined presented alterations sufficiently characteristic to justify the presumption that they had been in contact with free sulphuric acid. 3. That free sulphuric acid had not been detected, nor any sulphate in larger proportion than naturally exists in the soft animal tissues.

The king's advocate finding this report discrepant from one previously made, had a third examination instituted, which was conducted by MM. Devergie, Barse, and Lesueur of Paris, who, in like manner, ascertained the existence of free sulphuric acid in the linen, and its complete absence in the various portions of the digestive canal. They, however, concluded that the child had been poisoned by sulphuric acid, but it must be observed that this latter conclusion was founded on evidence taken during the investigation of the case; the physicians, in fact, who first saw the child, stated in their report, that on their arrival they found the child dying and vomiting an acid corrosive liquid which had produced round the mouth, on the cheeks, and on the neck, &c., red and deep excoriations, and a portion of which having fallen on the linen submitted to analysis, had occasioned the stains recognized by analysis to have been produced by sulphuric acid.

M. Blondlot of Nancy, on examination at the trial, when informed of those facts, at once adopted the conclusion of the physicians of Paris, stating that he and his colleagues at Nancy felt themselves bound to limit themselves strictly to the terms of their report in the absence of all documents calculated to guide them in interpreting the facts they had ascertained.—*Gazette Médicale de Paris.*

DISTINCTION BETWEEN HOMICIDAL AND SUICIDAL STRANGULATION.

A man was discovered lying dead in a loft. The brown ecchymosed trace of the cord by which he had been strangled was distinctly perceptible round the neck, but nothing was found near the body by which strangulation could have been effected. His wife was suspected of having murdered him, but no one had witnessed the act, and she maintained that he had committed suicide. The physician charged with the examination of the body was required to answer the following questions :—Was suicide possible in this case? Or had strangulation, on the contrary, been effected by the hands of another?

The reply was that the hypothesis of suicide must be rejected. When strangulation is the result of suicide it can occur—first, from suspension; second, from direct constriction of the neck. This last mode of suicide requires peculiar dispositions to admit of its accomplishment, and must be of very rare occurrence, and a careful examination of the direction of the mark left by the cord in this case excludes the foregoing modes of strangulation. To render strangulation by suspension possible, the cord must be retained behind the angles of the lower jaw, as otherwise it would slip on the body of that bone and leave the organs of respiration free. In the present case, the trace of the cord on the right side passes in front of the lower jaw, and on the left side behind the angle of the jaw, but without touching it, which renders strangulation by suspension quite improbable.

In strangulation by direct constriction, whether by the garotte, or any similar manœuvre, the cord must act almost horizontally and nearly equally round the entire circumference of the neck, and leave a corresponding impression; but here the impression is not horizontal, and exists only on the front of the neck. The strangulation was, therefore, concluded to be criminal, and to have been probably effected by the violent pressure of a cord held with both hands on the front of the neck, while the victim lay on his back.—*Gazette Medicale de Paris.*

ON A CHEMICAL ANTIDOTE APPLICABLE IN ALL CASES OF MINERAL POISONING, AND IN POISONING BY THE COMPOUNDS OF CYANOGEN. By Dr DUFLOS.

An antidote should be rapid and certain in its action, and incapable of itself exerting any deleterious influence, and if it combines with those properties applicability in poisoning by an entire class of important poisons, its value is further enhanced. Such an antidote to the mineral poisons has hitherto been wanting. The hydrated sulphuret of iron, proposed by M. Mialhe some time since as an antidote, is more extensively applicable than the white of egg; but it presents the inconvenience of generating a protosalt of iron by its combination with the poisonous substance; and it is, moreover, inefficacious in the case of cyanuret of mercury, the most poisonous of all the salts of mercury, and with which so many fatal cases of poisoning have of late years occurred in France. In fact, the combination of this salt with hydrated persulphuret of iron generates sulphuret of mercury, protoxide of iron, and prussic acid.

Numerous experiments had led M. Duflos to the result that the addition of magnesia to the hydrated persulphuret of iron removes the foregoing objection. A mixture of those two substances with water completely obviates the deleterious influence of the mineral poisons, including cyanuret of mercury, and a soluble protosalt of iron is not formed. Cyanuret of mercury is converted into sulphuret of mercury and cyanuret of iron and magnesium. This result induced M. Duflos to experiment with free prussic acid, but its poisonous properties were not neutralized, for there was formed, besides a little rhodanuret of magnesium (*rhodonmagnesium*), a large quantity of poisonous cyanuret of magnesium. By adding, however, some protoxide of iron to the sulphuret of iron and magnesia the protective power of the mixture became complete, and the prussic acid disappeared with formation of cyanuret of iron and magnesium.

M. Duflos adds, that even in poisoning by the vegetable alkaloids (strychnine, morphine), the proposed antidote possesses some efficacy, as magnesia decomposes their soluble salts, and reduces them to their basic state, in which condition they are scarcely soluble, and therefore absorbed with difficulty. On agitating a solution of nitrate of strychnine with a portion of the mixture in question, the liquid when filtered was exempt from strychnine, as was shown by tasting it, and by adding to it a drop of pure nitric acid, and then two drops of concentrated sulphuric acid, which is the most certain method of detecting strychnine in a very dilute solution, the quantity of it present being approximately estimated by the intensity of the golden yellow tinge produced.

M. Duflos prepares his antidote as follows:—100 grammes of solution of ammonia sp. gr. 0.970 are perfectly saturated with sulphureous acid gas, the resulting hydro-sulphuret of ammonia is mixed in a most accurately stoppered bottle with 1500 grammes of distilled water, and a solution of 75 grammes of crystallized protosulphate of iron in 500 grammes of water is added, the mixture being stirred. Enough of water to completely fill the bottle is then added, which is hermetically closed by means of a piece of bladder, and the precipitate is allowed to form. The supernatant liquid is removed by a syphon, and the precipitate is washed by decantation. 75 grammes of protosulphate of iron are also dissolved in 500 grammes of water in another bottle capable of being perfectly closed, to which 30 grammes of calcined magnesia, previously triturated in water, so as to form a kind of milk, are added, the mixture is shaken, the bottle filled with water, and the entire is allowed to stand. The precipitate is washed and collected as in the foregoing case. Finally, both precipitates are mixed and carefully guarded from access of air in a bottle. —*Gazette des Hopitaux de Paris*, and *Dublin Medical Press*.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

AUGUST MEETING.

Dr Ritchie, in an extemporaneous address, communicated to the Society some practical remarks on the Continued Fevers of Great Britain. He was of opinion that all the forms of these fevers were resolvable into two genera,—Simple Continued Fever and Typhus; that the former had for its exciting cause atmospheric changes or malaria, and the latter, the miasms arising from living human bodies; that simple continued fever was found, according to modifications in the exciting cause, to affect certain organs more prominently in one instance than in another; that such differences were not of a generic but of a special kind only, and might conveniently be arranged under the various species of Cephalic, Bronchial, Gastric, Gastro-Hepatic, and Enteric Fevers; that typhus was a pure exantheme, and generically distinct in nature from every form of simple continued fever, all the species of which were convertible into one another, but never into typhus, and typhus never being convertible into them; that both typhus and simple continued fever might, from circumstances, assume a more inflammatory or a more putrid, a milder or a more grave form, or be distinguished by either a typical or an abnormal arrangement of their symptoms; but that such modifications, while they might constitute varieties, did not alter the specific, and much less the generic, distinctions of the two diseases.

He then entered into an outline exposition of the different species of simple

continued fever and of typhus fever, with their varieties, and of the most suitable treatment of both ; and concluded by insisting on the great importance, in a practical point of view, of distinguishing between simple continued fever and typhus ; and also of framing the whole remedial management of both affections on the principle of such distinction.

After some discussion, the further consideration of the subject was postponed till the September meeting.

SEPTEMBER MEETING.

At the meeting of the 25th September, the discussion was accordingly resumed by Dr Ritchie reading some observations¹ on the resemblances and dissimilarities between enteric fever and typhus ; after which he contended that he had completely established his assertion of their essential and independent individuality, and the subject was closed by several members delivering their observations, and concurring in the views taken by the essayist.

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

The fourteenth anniversary meeting of the Association was held at Norwich, on Wednesday the 19th and Thursday the 20th of August 1846.

We present our readers with some extracts from the very appropriate address made on the occasion by the President, J. G. Crosse, Esq., of Norwich, on taking the chair :—

“Gentlemen,—In entering upon the high office to which I am now called, I feel incapable of saying anything that can adequately portray my excited feelings. To be placed nominally at the head of so large and influential a body as the Provincial Medical and Surgical Association, composed of above 1800 members of our profession, is indeed a giddy height, which must be perilous to myself, and can be rendered secure only by your further kindness and support. I consider it as an auspicious day for the profession in this district, that in our ancient city, situated so remotely from the great moving centres of human life and action, so many gentlemen of respectability, talent, and distinction, are assembled together for purely scientific and social purposes. The numerous body already present offers a sufficient guarantee that much is about to transpire ; and as time, always precious to all, is particularly so to ourselves, I will not detain you longer with merely introductory remarks.” * * *

“A warm zeal for medical science is undoubtedly the great source of its advancement in this country, where the government has done, and perhaps is capable of doing, so very little. But one of its recent and most valuable acts deserves to be mentioned ; the annual report of the Registrar-General, worked up to the highest pitch of correct mathematical calculation in the department which relates to disease, by Mr Wm. Farr (a noble scion of our profession), promises to supply great advantages to the state, and to be a guide to our prudential institutions for life insurance. Towards these improvements, every practising medical man gives his gratuitous aid, by furnishing certificates, for which the public remain indebted to him. In the army, medical officers continue to perform laborious duties, by furnishing reports, of which the public are as much in need and entitled to an annual summary, as to what transpires in the civil department ; but those documents continue to accumulate, without being converted to any proper statistical account, and must in course of time increase to so unwieldy an extent, that nothing but a deluge or a conflagration can dispose of them. The government is just beginning to direct its attention to sanatory regulations throughout the provinces, which must prove a national benefit ; and perhaps we may regard the arrangement for partly remunerating

¹ See p. 247 of the present number.

the most working members of the profession, the union surgeons, out of the public funds, and thus connecting them with the state, as a movement in the right direction, and a security for further improvement in the medical care of the poor.

"As a science to be studied for the public good, legislation on medical matters is entitled to every consideration; until recently, it received less attention from the executive in this, than in almost any other civilized country in the world, although the profession have been agitating the subject for nearly forty years, to my knowledge, but most warmly in the last three or four; and after all, what are the conclusions most generally arrived at, and avowed by the greater part of thinking and experienced men? A few general principles are what they agree upon; and foremost may be placed "a general registration of all legally qualified, with annual publication of the registry." The next are, uniformity of education and community of privilege, in each grade, throughout the empire—principles which will be more appreciated every year, by the increasing intercourse which rapid and easy transit is sure to produce, rendering the present incongruities more and more apparent, until they will be deemed too absurd to be longer maintained, and we shall see the profession in England, Scotland, and Ireland, united into one brotherhood. It is not a little extraordinary "that the protection to the public by penal laws against the unqualified" seems not to be so generally admitted as a necessary principle of legislation.

"To carry out the principles I have enumerated would be, in my humble view, a great boon to the public, and not less so to the profession; and all minor details are scarcely worthy to be regarded as immediately essential, particularly at the risk of our getting nothing done. In grasping at the shadow we may lose hold of the substance. But there is one truth worthy to be made prominent, and to be frequently placed before us; sound legislation will benefit, but the influence, respectability, and high *status* of the profession in this country, must be secured and maintained by very different means—by knowledge honestly applied,—by integrity, assiduity, kindness,—by the absence of all contentious, narrow, over-selfish, and grovelling passions—by liberality and forbearance towards each other—and I may be permitted, I am sure, before the present company, to add, that, the exercise of all these virtues which I have enumerated, and their results, will be greatly promoted by social and scientific intercourse with our brethren, such as the Provincial, above all other Associations in the empire, is most calculated to foster and promote. But the best prospects are held out, when the improvement of society at large accompanies that of the profession; for how much depends upon the state of the public mind, its information, and its power to discriminate! A powerful influence is reciprocally exercised between the public and our profession. In the metropolis, and with the pre-eminent, it may be otherwise, but in provincial towns, every medical man may be said to practise in his own atmosphere. The grounds for selecting an ordinary medical attendant are as various as the tempers, dispositions, and minds of individuals; these are matters to be left to their own unavoidable course. Disregarding as far as may be, the whims and prejudices of the public, we should direct our minds intently upon these three objects—the full attainment of the sound medical knowledge of the day—the diffusion of what knowledge we possess—the advancement of medical science! On each of these a man may base a solid reputation, but on account of the last only can he be considered as entitled to renown. As to that notoriety, disconnected from superior knowledge, and depending on transient multitudinous applause, it ought to be little prized by members of such a profession as ours; rarely if ever is it durable, never satisfactory. The public favour, on which such notoriety floats, has been compared by one of our greatest writers to a running stream, which lifts the frothy and light materials to the top, but lets the solid and weighty sink to the bottom:—

"*Lævia et inflata attollit, grävda et solida mergit.*"

It ennobles our calling to endeavour rather to correct the defective information of the class of society we approach, than to convert it selfishly to our advantage. How much at our mercy is the *malade imaginaire*, the greedy consumer of innumerable doses, till he is more sick from the medicine than the disease, 'always tampering with his health till he has spoiled it, like the foolish musician, that breaks his strings with striving to put them in better tune.' Happily the medical is not often charged with being a sordid profession, and few, very few, it is to be hoped, are justly entitled to the sarcasm of the greatest of English satirists, who has hinted that there are some to be found who attend—

“ ‘ Not for the sickly patient’s sake,
Nor what to give—but what to take ;
To feel the pulses of their fees,
More wise than fumbling arteries ;
Prolong the lamp of life in pain,
And from the grave recover—gain ! ”

Perhaps Plato had such in view, when he stated it to be a sign of a bad commonwealth, if physicians were very numerous ; it would certainly be a bad commonwealth to the physician, unless diseases were numerous also.”

* * * * *

“ It must necessarily happen, that a vast majority of our profession can aspire to no greater merit than that of collecting facts, for which, however, they deserve approval, and even commendation, if their facts be *true* and *real*; for it has been remarked, with some justice, that there are as many false facts as false theories. Mere facts, however closely connected with, are as distinct from science, as colours on the pallet from a beautiful picture worked out by the talents of an artist. In medical science, facts are the *materials* for a building, and require to be converted by the operation of the minds of the more gifted amongst us to their proper object,—the awakening of philosophical ideas, and the constructing of a theoretical system for our guidance. But the reverse of the inductive is too commonly the course pursued, even in these enlightened days; theories are first formed, and the facts are made to come afterwards, suitable to the preconceived speculations; and it is melancholy to reflect, that when once a theory has taken possession of the mind, it cannot be displaced without offering another in its stead, often as delusive as its predecessor. Rarely, in these modern times, has medical science been beset with more bewildering theories of the day than at present. What one man honestly espouses, another ridicules and despises, and in the collision thus arising is found the wonted stimulus to mental activity. But that the infinitesimal follies of homœopathy, the drolleries and deceptions of mesmerism, or the more dangerous excesses of hydropathy, can ever long persist, or any one of them be brought to the position of a science worthy of general support, will, I trust, scarcely be admitted by the present enlightened assembly. Theories are unavoidable, and, where they are honestly embraced and used, to a certain extent desirable, and may even prove useful; but were the great body of the profession,—nay, were any preponderating number of this large association,—to become captivated with any delusive doctrine, and to merge into the fanaticism of the day, we should be driven back to the dark ages of our history, denominated by a learned professor the stationary period of the inductive sciences, ‘when experiments were replaced by commentators, criticism took the place of induction, and instead of great discoveries we had learned men.’ ”

* * * * *

“ And now I must conclude my initiatory remarks, with expressing a fervent desire that all the occurrences of this anniversary may be calculated to do honour to our profession, and promote the best objects of the association,—science, cordiality, a beneficial knowledge of each other. I must avoid prolixity, as it must throughout our whole proceedings be avoided, for economy of time. If brevity be the soul of wit, it is equally so of science, and of all that

is practically useful and available in our busy life. Whatever comes before so numerous a meeting of the profession as is now assembled in this city for the first time, and probably for the last in our day, should be well weighed and considered, and the motto worn by each contributor to our proceedings should be—

“Fugit irrevocabile tempus!”

Under the able presidency of Mr Crosse, the Norwich meeting has passed over in the most satisfactory manner. The retrospective address was read by Dr Ranking, of Bury St Edmunds, which is to be printed. Dr Shearman, of Rotherham, was appointed to read the retrospective address on medicine at the anniversary for 1847, and Mr John H. Walsh, of Worcester, the triennial address on the progress of surgery. The meeting for 1847 is to take place at Derby, and Dr William Heygate, F.R.S., was appointed President elect. Dr Favell, of Sheffield, the President of last year, was prevented by illness from attending to take the chair at the commencement of the meeting, and it is with much regret we observe that he is since dead—cut off in the flower of his age, and with a daily increasing reputation. Numerous important communications were read, and the usual conviviality was heartily kept up. Two distinguished foreigners attended the meeting, Anders Adolph Retzius, M.D. Chir. M. Inspector of the Royal Carolinian Institution and Professor of Anatomy, M.R.A.S., Stockholm; and John Ware, M.D., Professor of Medicine in the University of Cambridge, Boston, U.S.

BOOKS RECEIVED.

1. Observations d'Anatomie Pathologique, accompagnées de l'Histoire des Maladies qui s'y rattachent. Par C. H. Ehrmann, Professeur à la Faculté de Médecine de Strasbourg, &c. &c.; Premier Fascicule, avec cinq Planches Lithographiées. Strasbourg. Folio. 1843.
2. Beiträge zur Kenntniss vom innern Baue des Menschlichen Gehirns. Von Dr Anton Förg, Professor der Medicin, &c., zu München. Mit drei Tafeln. Stuttgart. 8vo.
3. Pathologische Physiologie des Blutes. Von C. A. Wunderlich. Stuttgart. 8vo. 1845.
4. Die Medicinischen Anstalten Prag's, nach ihrem Gegenwärtigen Zustande geschildert. Von Dr W. R. Weitenweber. Prag. 12mo. 1845.
5. Annales de l'Anatomie et de la Physiologie Pathologiques publiée, par J. B. Pigné, Conservateur du Museum Dupuytren, &c. Fascicules de 1 à 9, avec 55 Figures. Paris. Grand 8vo. 1846.
6. Harncocretionen nach Dr Heller's Vorlesungen. Handschriftlich mitgetheilt dem Herausgeber. Hermann Zeissl, M.D. Wien. 8vo.
7. Consultation Médico-Légale sur quelques Signes de Paralysies Vraies, et sur leur valeur relative. Par M. Mac-loughlin, M.D., d'Edinburgh. Deuxième Edition. Paris. 8vo. 1845.
8. Transactions of the China Medico-Chirurgical Society for the year 1845-46. 8vo, pp. 80. Hong Kong. 1846.
9. Medical Report of the House of Recovery and Fever Hospital, Cork Street, Dublin, for two years. By G. A. Kennedy, M.D., M.R.S.A., &c. Dublin. 8vo. 1846.
10. Chelius' Surgery. By South. Part 13.
11. On Wounds and Injuries of the Arteries of the Human Body, with the Treatment and Operations required for their Cure. By G. J. Guthrie, F.R.S. 8vo. London. 1845.
12. The Microscopic Anatomy of the Human Body in Health and Disease, illustrated with numerous drawings in colour. By Arthur Hill Hassall. Parts 1 and 2. 8vo, pp. 76 each. London. 1846.
13. Fever physiologically considered, considerations on Yellow Fever, Typhus Fever, Plague, Cholera, and Sea Scurvy, &c. By D. Mc'Connell Reed, Esq., Surgeon. 12mo, pp. 263. London. 1846.
14. Medical Report of the Managers of the Lunatic Asylum of Aberdeen for 1845-46.

NOTICE TO CORRESPONDENTS.

TO THE EDITORS OF THE FRENCH AND ITALIAN JOURNALS.

In order to insure regularity of transmission, we have to request that the French and Italian periodicals exchanged with the Monthly Journal be in future forwarded as soon as possible to T. B. Bailliére, Rue de l'Ecole de Médecine, Paris.

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No. 5. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Amputation of the Thigh.* By JAMES SYME, Esq.,
Professor of Clinical Surgery in the University of Edinburgh.

PREVIOUSLY to 1822, amputation of the thigh had always been performed in Edinburgh by circular incision. Having in that year found the operation by flap regularly taught in Paris as a substitute for the ordinary method—and having witnessed its performance in the practice of Mr Liston—I wrote a paper with the view of recommending this plan, and for many years afterwards inculcated it in my lectures as, on all occasions, preferable to the other. In the Royal Infirmary, where all the attending surgeons have been the pupils of Mr Liston or myself, the circular operation was completely abandoned; and the influence of this example, together with the written as well as oral instruction connected with it, has produced the effects that might be expected here and elsewhere.

Notwithstanding the share I thus took in introducing the flap operation, and the confident persuasion of its superiority formerly entertained, I have long felt occasion to point out some serious inconveniences apt to attend its performance; and I am now satisfied that there are circumstances in which the circular incision ought to be preferred. If the relative merits of the two methods in question had been discussed with less party or personal feeling, and more practical experience, it is probable that

¹ Edinburgh Medical and Surgical Journal, 1823—p. 152.

the choice between them would not have proved so exclusive as it has hitherto done. And I will now endeavour to explain the grounds upon which it appears to me that a reasonable selection may be founded.

In favour of the flap operation, it is contended, 1. That the process, from its facility and rapidity of execution, must be less painful to the patient than the circular incision; and also renders it unnecessary to use a tourniquet, as manual compression in the groin may be effectually employed during the short space of time required for its performance, so that the limb may be removed at any part of its extent, and without the inconvenience alleged to result from the pressure of a tourniquet, in regard to ligature of the vessels. 2. That the soft parts may be readily fashioned, so as to afford an ample covering of muscle and integument for the bone. And 3. That the different textures of the stump, being allowed to preserve their natural connections, are more capable of sound union, than when detached from each other by dissection and retraction. In objection to this method it is said, 1. That the rapidity of execution is apt to prove hurtful in subjects of defective strength, by producing a shock similar to that of a gun-shot wound. 2. That the vessels being cut obliquely, are secured with difficulty. 3. That the wound is of greater extent than the surface resulting from circular incision. And, 4. That though the flaps afford an ample covering for the bone in the first instance, the contraction of their muscular substance gradually withdraws them from it, during the process of healing, so that there is ultimately nothing more than skin, and frequently not even this, to protect the osseous surface. The grounds upon which the circular operation is maintained, are, 1. The greater facility which it affords to ligature of the vessels. 2. The smaller size of wound resulting from it. And 3. The more permanent covering which it affords to the bone.

In subjecting these various arguments on both sides of the question to the test of experience, it may be remarked, that they are not all of equal value; some of them relating to matter of mere convenience, while others regard consequences of the most serious nature. The great questions at issue are, Which operation least endangers the patient's life? and, Which affords the most comfortable stump? Now, every one who has witnessed the flap operation performed extensively and indiscriminately for amputation of the thigh, must have seen a large proportion of deaths, and in the event of recovery, not unfrequently a condition of the stump no less unseemly than inconvenient. Such are the undeniable facts, and their explanation presents little difficulty to any one who has had sufficient opportunity of observation.

So far as the mere performance, or early consequences of the flap operation, are concerned, nothing can be more satisfactory. The incisions are executed almost instantaneously, and the whole process is completed with a degree of facility, despatch, and ease

to the patient, that presents a remarkable contrast, when compared with the delay and suffering, from complexity of procedure, necessarily attendant upon the circular method. The following extract from a letter addressed to me by Mr Robertson, Surgeon of the Convict Hospital Ship, Sheerness, affords a good illustration of the impression thus made upon an unprejudiced mind.

“18th August, 1824.

“DEAR SIR,—An opportunity having been afforded in this hospital of putting into execution the mode of amputation recommended by you in the seventy-eighth number of the *Edinburgh Medical and Surgical Journal*, I determined on adopting it. My patient, a lad of sixteen, labouring under an enlargement of the bones of the knee-joint, which had resisted repeated local bleeding by leeches and cupping, issues, blisters, embrocations, and moxa, together with several courses of alterative medicine, submitted to the operation on the 2d instant. My assistant, Mr Bayley, having undertaken to command the femoral artery by pressure with his thumb, I followed your directions in every particular, employing neither tourniquet, tenaculum, nor retractor; and in comparison with the former mode of amputation, this was the work of a moment, with a great diminution of pain, little or no hemorrhage, and with a surface that enables every vessel to be seen on the instant. * * * *
A convict, on whom I had amputated some time ago, stole unnoticed into the ward, and witnessed this operation. He was so struck with the rapidity of the process, and the diminution of pain to the sufferer, that he stopped me on deck to express his surprise at the *unnecessary* pain to which he had been subjected! I quieted his vexation by telling him, that this mode was not then known.—
I am, dear sir, &c.

ARCHIBALD ROBERTSON.”¹

When the flaps are placed together it seems as if nothing could prevent their perfect union so as to effect a speedy cure, and afford a comfortable covering to the bone. In some cases these favourable anticipations are fully realised; but though a good many days, and even one or two weeks, may elapse without making manifest the disappointment to be experienced, it much more frequently happens that the soft parts, however ample they may have appeared in the first instance, gradually contract and diminish until care is required to keep their edges in apposition over the bone, which sometimes, notwithstanding every precaution, at length becomes denuded, and presenting itself to view, whether dead or living, proclaims the unavoidable misery of a sugar-loaf stump. This distressing result depends upon the vital contractility of the muscular tissue, which continuing in operation so long as the cut surface is not prevented from yielding, by the formation of new adhesions,

¹ *Edinburgh Medical and Surgical Journal*, 1824—p. 437.

not only lessens the mass of flesh provided for covering the bone, but gradually retracts it together with the superjacent integuments. The effect thus produced is favoured by the following circumstances. In the first place, by cutting the flaps of such moderate length that when brought together they merely meet without straining; secondly, by sawing the bone where it is exposed by simply separating the flaps, instead of drawing the muscles back so as to divide it at a considerably higher point; and thirdly, by performing the operation at the lower third of the thigh. Mr Liston recommends amputating at the middle of the bone, upon the ground of thus forming a more convenient stump for the attachment of an artificial limb than would result from operating at a lower point. For my own part, I have, during many years past, advised this to prevent the great risk or almost certainty of protrusion to which the bone is exposed when divided at or near its lower third. But the flap operation being thus objectionable below the middle of the thigh, and even higher up seldom in the end furnishing more than a covering of skin to the bone, it may be inquired how far the circular method deserves adoption in amputating at the lower third.

The true object of the circular incision is to provide a covering of skin for the bone; and a great error has been committed by many, indeed almost all the would be improvers of this operation, in directing their attention to modifying the division of the muscles, as if any form of their section could materially influence the result. All the attempts with this view have been directed so as in one way or other to give the cut surface of the muscles a conical form, evidently under the impression that they serve to assist in covering the bone. Now, it is quite clear, that if the ample masses of flesh afforded by the flap operation yield to the retractile agency of their tissue, the scanty portion obtained by any form of circular incision cannot have the slightest effect in improving the condition of the stump. These wrong directed efforts would have done no harm unless they had withdrawn attention from what was really required to render the result satisfactory. In this way, however, they have seriously opposed improvement, and in my own case, I confess, long prevented the truth from being distinctly seen.

The perfect condition of stump resulting from amputation at the ankle, where there is nothing but integument to protect the bone, led me to conclude, that if the circular operation could be performed with the certainty of providing such a covering, it might be employed with advantage in the lower third of the thigh; which being the thinnest part of the limb, most readily admits of forming a stump composed merely of skin. There is also, in operating here, plenty of room to apply the tourniquet without impeding the incisions or retraction of the muscles, and the size of the wound inflicted is, of course, much smaller than that of an amputation at the middle of the thigh. In the course of this summer I have performed the operation

four times, on adult patients, with the effect of confirming the favourable expectation which the considerations just mentioned had led me to entertain; and I now feel warranted to advise, that whenever a case requiring amputation of the thigh admits of the limb being removed at its lower third, the circular method should be employed.

The compress of the tourniquet should be applied over the artery close to the groin. Instead of the old-fashioned concave edged, thick-backed amputating knife, a middle sized one of the kind employed for the flap operation, will be found more convenient. The incision of the skin should be made as near the knee as possible, not in a circular direction, but so as to form two semi-lunar edges, which may meet together in a line from side to side, without projecting at the corners. The fascia should be divided along with the integuments, which are thus more easily retracted—not by dissecting and turning them back, but by steadily drawing them upwards, through means of the assistant's hands firmly clasping the limb. This should be done to the extent of at least two inches, or more, if the thigh is unusually thick. The muscles are then to be divided as high as they have been exposed, by a circular sweep of the knife, directly down to the bone, from which they must be separated and retracted with the utmost care. In ordinary circumstances, the retraction should not be less than two inches, and before using the saw, the bone must be completely exposed by means of a cloth split up the middle, applied on each side of it, and forcibly held up.

If due attention be paid to these directions, I feel confident that amputation by circular incision at the lower third of the thigh will afford satisfactory results, and should therefore be preferred to the flap operation, at a higher part of the limb, when the circumstances afford room for choice. Where it is necessary to amputate at or above the middle of the bone, there can be no question as to the propriety of operating by the flap method.

Before arriving at the conclusion which has just been explained, I thought that amputation at the knee might be employed with advantage, as a substitute for the flap operation, at the middle of the thigh; and my opinion would still be so, if this alternative afforded the only room for choice. I operated at the knee with complete success in three cases, two of which were diseases of the joint; and the other a recent injury from the leg having been torn off by machinery. But as the soft parts required to form the stump in this situation, are apt to be so deranged in their texture as to delay, though not prevent recovery, and thus, in some measure, counterbalance the advantage of exposing cancellated, instead of dense bone, together with the contents of its medullary cavity, I do not persist, in advocating amputation at the knee, now when satisfied that the operation by circular incision, if performed with due care, on proper principles, may be employed at the lower third of the thigh, safely and advantageously.

ARTICLE II.—*Contributions to Pathology and Rational Medicine.*

BY J. HUGHES BENNETT, M.D., F.R.S.E., Lecturer on Pathology and the Practice of Physic, Director of the Poly-Clinic at the Royal Dispensary, &c. &c.

No. 3.—*On anormal nutrition and diseases of the blood.*

THE various modes in which nutrition becomes impaired, and the blood diseased, can only be understood by passing in review the various steps of the nutritive process. We have already pointed out how pathology and rational medicine must be based upon anatomy and physiology, and there is no one subject perhaps which is so well capable of illustrating this proposition as the one we are about to consider. For ages medical men have been in the habit of considering the blood to be the primary source of numerous maladies. It will be our endeavour to show, by an analysis of the process of nutrition, that the changes of the blood, and the diseases which accompany them, are not primary but secondary, that is dependent on previously existing circumstances, to the removal of which the rational practitioner must look as the means of curing his patient.

For the sake of convenience of description and reference, we shall divide the process of nutrition in man into six stages. 1. The introduction into the stomach and intestinal canal of appropriate alimentary matters. 2. The formation from these of a nutritive fluid, the blood. 3. The exudation through the capillaries of a *formative blastema* in certain proportions. 4. The various transformations which the exudation undergoes in the formation of tissues and secretions. 5. The disappearance of those transformed matters, the functions of which are perfected, and the re-absorption of their effete particles into the blood. 6. The excretion of these from the body, in various forms and by different channels.

These different stages comprehend not only growth, but the processes of assimilation, absorption, secretion, and excretion; and we believe that it is only by understanding nutrition in this enlarged sense that we can obtain a correct explanation of those important affections, which may appropriately be called diseases of nutrition. We shall first, however, consider each of these stages separately.

1. *The introduction into the stomach and intestinal canal of appropriate alimentary matters.* Alimentary matters have been divided into several groups. The most simple is the modern one of azotized and non-azotized substances. The most important azotized principles are fibrine, albumen, and caseine; the most important non-azotized are fat, starch, gum, and sugar. Both animal and vegetable aliments are capable of yielding similar proximate principles, although in different proportions. Those which are most subser-

vient to nutrition are albumen and oil. Dr Ascherson of Berlin was the first to point out the effects produced by a union of these, and their importance in the formation of every organized tissue. His observations have been confirmed by every observer, and when we regard the proportions in which these principles enter into our food, their presence in milk, the natural food of young animals, their universality in every blastema and organized tissue, and the numerous experiments which prove that they are capable when united, although not alone, of furnishing the conditions necessary for the support of living animals, we are at once led to the conviction that albumen and oil are the chief alimentary matters destined for nutrition.

Whilst albumen and oil may be considered as types of the chemical division of nutritive substances into nitrogenized and non-nitrogenized, they prove that other conditions than chemical ones are necessary for nutrition. When mingled together they produce an emulsion, identical in structure with that of the milk, that is, containing numerous globules composed of a minute drop of oil, enclosed in an albuminous membrane.¹ It is probable that the function of the stomach and intestines consists in separating or converting from the contents submitted to them, albuminous and fatty matters in a fluid state, which being absorbed, constitute that emulsion observed within the extremities of the villi when they are called into activity.

In addition to the two classes of alimentary matters alluded to, there is another composed of mineral ingredients, such as common salt, phosphorus, sulphur and lime. These enter in sensible proportions into our food, are found in various tissues and fluids, and are essential to nutrition.

It is unnecessary to dwell at any length upon the fact that of all the causes of disease, irregularity in diet is the most common. Neither need I do more than merely allude to the equally well known circumstance that of all the means of cure at our disposal, attention to the quantity and quality of the ingesta is by far the most powerful. The peculiar kind of interference with the aliment,

¹ It may be well to point out more particularly how this fact may be easily demonstrated. Place a drop of oil and one of the white of egg, of about equal size, on a slip of glass near each other. Unite the two together by means of a needle, and then by inclining the glass allow the oil to flow over the albumen. A pellicle will be observed to have formed. Cover the whole lightly with a thin glass, and examine it microscopically with a power of 250 diameters linear. A membrane more or less folded or puckered will be seen to have been formed. If now the upper glass be rubbed gently forwards and backwards upon the under one, the oil and albumen will be mixed together, and the whole will assume the appearance of milk. If this be done dexterously it will be seen on re-examination microscopically that all traces of the membrane have disappeared, and that the emulsion presents all the characters of milk.

Professor Vogel now of Giessen, although well acquainted with the views of Ascherson, had never succeeded in this experiment, having always rubbed the oil and albumen together in a mortar. Neither had he ever seen the membrane, or globules alluded to, notwithstanding many efforts to do so, until I demonstrated them to him and his class last August in Göttingen.

which various diseases require, will be illustrated as we proceed further.

2. *The formation from alimentary matters of a nutritive fluid—the blood.* The exact process by which blood is formed from alimentary matters has not yet been traced by physiologists. In the duodenum the chyme becomes mixed with bile, which produces important changes in it; but the nature of these, and the true uses of the bile are subjects which have not yet been positively determined. The matter absorbed, forms chyle, which, at the upper extremity of the thoracic duct has occasionally been observed to present a reddish tinge. But whether the formation of blood has been there commenced, or whether the redness is owing to a regurgitation of blood from the vessels is likewise a disputed point. When at length the chyle enters the torrent of the circulation, it presents all the characters of blood.

The blood must be examined structurally and chemically. In structure it consists of numerous yellow corpuscles, a similar number of colourless corpuscles, and a few granules, floating in a yellowish fluid, the liquor sanguinis. The liquor sanguinis consists of fibrine dissolved in serum, which has the property when drawn from the body, or under certain other circumstances, of coagulating. The facts connected with this subject are too well known for us to enter upon them minutely.

It is exceedingly difficult to ascertain the exact chemical composition of healthy blood, but from the analyses which have been made, we may for practical purposes consider its various constituents to be present in 1000 parts in the following proportions: Water varies from 770 to 790 parts. Fibrine from 2 to 3 parts. Albumen from 60 to 70 parts. Corpuscles from 130 to 150 parts. Extractive matters, fat, and salts, from 10 to 20 parts.

We know from the results of numerous analyses, that these proportions are greatly changed in various diseases, as we shall see when we come to speak of each separately. What we are desirous of alluding to now, however, is the well known fact that one of the most common causes of derangement in the blood is the different kinds of food. M. Denis mentions that in a young girl of good health the globules were represented by the proportion of 132. After 15 days of rigorous diet they were represented by 85. The other constituents, but more especially the water, albumen, fat and salts, are modified to a like extent by changes in the diet.

3. *The exudation through the capillaries of a nutritive fluid in certain proportions.* From the blood a fluid blastema is continually exuding through the capillaries for the formation and sustentation of the different tissues of the economy. It is necessary that this exudation should take place to an amount proportionate to that supplied to it by assimilation, on the one hand, and that dissipated by waste, on the other. If more or less be exuded, a morbid condition is occasioned. An increased amount of exudation, if poured

forth slowly, gives rise to hypertrophies; if rapidly, to various morbid deposits. A diminished amount of exudation, on the other hand, produces atrophy.

A normal amount of exudation essentially depends upon the integrity and healthy condition of the capillary vessels. These may be diminished or enlarged in size; they may be obstructed or lacerated, circumstances which, by impeding a healthy exudation, or rendering it excessive, give rise to morbid states. It is an increased exudation from the capillaries which constitutes that pathological condition we have been in the habit of considering under the general term of inflammation.

4. *The various transformations which the exudation undergoes, so as to produce the tissues and secretions.* This is now generally considered to take place through the agency of cell growth, in the manner first pointed out by Schleiden and Schwann. It is only necessary for us to say, with respect to this well-known theory, that it is not so universally applicable as its authors supposed. We have already seen that structures may be formed artificially by the union of oil and albumen; and we know that certain filaments, membranes, and even tissues, may be produced by simple deposition from a blastema, independently of the agency of cells. Still it must be conceded that, as regards most of the processes of growth, the theory of cytogenesis offers a very satisfactory explanation.

Whilst the transformation of some cells is directed to the formation of the tissues, that of others seems to terminate in producing the various secretions. The observations of Messrs Bowman and Goodsir render it probable that this is the function of the ultimate cells in glands.

Irregularities in the quantity or quality of the exudation not only more or less modify the transformations which the tissues undergo in a state of health, but other structures or cells, altogether foreign to the healthy animal condition, may, under such circumstances, be formed. Thus we have pus, exudation, plastic, tubercle, and cancer cells, together with those seen in typhous ulcerations, fungi, &c. &c. All such cells seem to be dependent on the exudation of a blastema, which, from its inherent composition, is not adapted to healthy nutrition. Hence that process is deranged, and an unhealthy or anormal nutrition carried on in a blastema foreign to the physiological state of the body. It is important to remember, however, that the same general laws of growth and transformation preside over the anormal as the normal cells.

5. *The disappearance of these transformed matters, and the re-absorption of their effete particles into the blood.* During life, whilst new cells are continually formed, the old ones disappear. The latter shrink, shrivel up, and ultimately break down into a finely molecular matter, which passes into the blood through the capillaries, minute veins, and lymphatics. A quantity of effete matter is thus continually entering into the circulation, arising from the

decay of all the tissues, but more especially from the muscular, osseous, nervous, adipose, and areolar tissues. The blood globules themselves probably dissolve after having performed their functions, and serve to swell the amount of effete matter in the blood.

So long as the matters absorbed from the tissues correspond in quantity to the matters exuded and transformed, the physiological or healthy state is preserved. We know, however, that this is continually liable to be disordered from any of the causes we have formerly noticed which derange nutrition. In some cases, absorption takes place with great rapidity, as we occasionally observe after the formation of large abscesses. In others, this process is in no way proportionate to the quantity of matters exuded, as in plethora, hypertrophy, and morbid growths.

The effete matters thus absorbed into the blood circulate with it, and always constitute an inherent part of its composition. It has been lately contended by Zimmerman that they form the fibrine of the blood, which, instead of being exuded to form the tissues, as has been generally supposed, is excreted from the body by the different glands. It may be well to recapitulate some of his arguments in favour of this opinion:

There is no fibrine in chyme, and very little in the chyle, and what is remarkable, much less in the chyle of carnivorous than in herbivorous animals, as horses and sheep. Hunger does not diminish its quantity in the chyle of horses, but on the contrary, rather increases it, if we can rely upon the experiments of Tiedemann and Gmelin, who concluded that the fibrine must get into the chyle through the lymphatics. Since, then, there is no fibrine in the chyme of carnivorous animals, whilst it constitutes so large a portion of their food, the object of digestion must be the transformation of fibrine into albumen. Further, the blood of carnivora contains less fibrine than the blood of herbivora. Again, lymph, that is the fluid part of the blood exuded in a state of disease, is loaded with fibrine, which would not be the case if it were the nutritive constituent of the blood. Lastly, the experiments instituted by Magendie, Nasse, and others, who transfused blood deprived of fibrine into an animal, show, that after having circulated awhile, it contained fibrine and was coagulable.¹

Independently of the arguments thus cited by Zimmerman, there are others in support of his opinion. It seems extraordinary, for instance, that if the tissues are formed from fibrine, that principle should only exist in normal blood, in the small proportion of from 2 to 3 parts in 1000—a quantity wholly inadequate to build up the tissues. Again, we find the fibrine increased under circumstances where absorption from the tissues is very active, as in inflammatory diseases attended with exudation or emaciation, as in pneumonia, acute rheumatism, phthisis pulmonalis, &c. It seems, then, more

¹ Zur Analysis und Synthesis der pseudo-plastischen Prozesse.

rational to suppose that nutrition is dependent rather on the exudation of albumen than of fibrine, and that this latter constituent of the blood is more connected with the decaying than with the formative stage of nutrition. If this opinion be correct we must regard the increase of fibrine in the blood as an effect, rather than, as some pathologists have supposed, the cause of inflammatory diseases.

6. *The excretion of the effete matters from the body in various forms, and by different channels.* The circulating fluid having received the effete matters in the manner we have described, again parts with them through the agency of the glands, in the form of various secretions and excretions. Glands are nourished by and formed like all other textures, but their cellular structure is endowed with the property of secreting different substances from the blood. Thus the cells of the liver secrete bile; those of the kidney, urea; those of the mamma, milk; those of the testis, the spermatic fluid, &c. &c. In this way much of the carbonized and nitrogenized matters, whether received from the assimilation of alimentary substances, or the result of the transformation of the tissues, is again excreted from the system, as bile, urea, &c.

The mineral matters received into the blood pass through the same process. The lime and phosphorus absorbed from the alimentary canal, unite to form the constituents of bone, and when re-absorbed are excreted under new combinations in the urine and fæces. The muriate of soda is decomposed in the tissues. The acid is found in the gastric juice, or is exhaled by the skin, while the soda is excreted with the bile by the liver. Sulphur has also lately been shown to pass out of the system, mixed with bile.

To complete the physiological changes connected with the function of nutrition, it is only necessary to remember that carbonic acid gas, the result of decompositions in the food and tissues, and water, are continually given off by the lungs and skin; and that oxygen, which enters the blood through the lungs, is essential to the performance of all those complicated processes which we have enumerated.

Thus we may consider that there are two kinds of digestion continually going on in the body—one in the stomach and intestines, the other in the tissues; that the blood is the recipient of both, distributing the results of the first to build up the tissues, and of the second to constitute the various excretions. In this manner the circulation of the blood may be compared to a river flowing through a populous city, which serves at the same time to supply the wants of its inhabitants, and to remove all the impurities that from numerous channels find their way into its stream.

We can now readily understand how derangement in one stage of the nutritive process, more or less affects the others. Thus, if alimentary matters are not furnished in sufficient quantity, and of a proper quality, the blood is rendered anormal, and it necessarily

follows that the exudation from it will be anormal also, and its subsequent transformations more or less modified. Again, if secretion be checked, the blood is not drained of its effete matter; and if excretion be prevented, the secretions themselves may enter the blood, and act upon it as a poison.

A diseased or morbid state of the blood, therefore, may arise from either of the stages of nutrition we have described, being rendered irregular, or otherwise anormal. In whatever part of the chain interruption takes place, it will, if long continued, affect the whole. Thus, a bad assimilation of food produces through the blood bad secretions and excretions, whilst an accidental arrest of one of the latter reacts through the blood on the assimilating powers. The forms of disease thus arising may be endless, but they may all be traced to the following causes:—

1. An improper quantity or quality of the food.
2. Circumstances preventing assimilation.
3. Altered quality or quantity of the exudation.
4. An anormal transformation of the exudation.
5. The accumulation of effete matters in the blood.
6. Obstacles to the excretion of these from the body.

Examples in which each of these causes, separately or combined, have occasioned disease, must have occurred to every practitioner. It is true that all general diseases are accompanied by certain changes in the blood, but these changes are to be removed, not by operating on the blood directly, but by obviating or removing those circumstances which have deranged the stage of nutrition primarily affected. For instance, a very intense form of disease may be produced in infants, from improper lactation. The remedy is obvious, and we procure a healthy nurse. Ischuria is followed by coma, from the accumulation of urea, we give diuretics to increase the flow of urine, and the symptoms subside. In the one case we furnish the elementary principles necessary for nutrition; in the other, we remove the residue of the process. In both cases the blood is diseased, but its restoration to health is produced by acting on a knowledge of the causes which led to its derangement.

In the same manner we might illustrate the indications for rational practice in the other classes of causes tending to derange the blood, which we have enumerated. Thus, although there be a proper quantity or quality of the food, there may be circumstances which impede its assimilation; for instance, a too great acidity or irritability of the stomach—the use of alcoholic drinks—inflammation or cancer of the organ. It is the discovery and removal of these that constitute the chief indications of the rational practitioner. Again, the capillary vessels become over distended with blood, and the exudation of liquor sanguinis to an unusual amount takes place, constituting inflammation. How is this to be removed? In the early stage topical bleeding will diminish the congestion, and the application of cold will check the amount of exudation.

But the exudation having once coagulated outside the vessels, acts as a foreign body, and the treatment must then be directed to furthering the transformations which take place in it, and facilitating the absorption and excretion of effete matter. This is accomplished by the local application of heat and moisture—the internal use of neutral salts to dissolve the increase of fibrine in the blood, and the employment of diuretics and purgatives to assist its excretion by urine or stool.

Want of space prevents our entering more fully on this subject at present. The general principle we are anxious to establish is, that diseases of nutrition and of the blood, are only to be combated by an endeavour to restore the deranged processes to their healthy state, in the order in which they were impaired; that for this purpose, a knowledge of the process of nutrition is a preliminary step to the rational treatment of these affections; that the theory of acting directly on the blood is incorrect; and that an expectant system is as bad as a purely empirical one.

ARTICLE III.—*Observations on the Parasitic Animalcules which occupy the Sebaceous Follicles of Man, and on the Disease of the Skin occasioned by their Inoculation in the Dog.* By DAVID GRUBY, M.D., Professor of Anatomy and Histology, Paris.

THE animal found in the sebaceous follicles of man, first discovered by Simon of Berlin, has been also studied by Erasmus Wilson, Vogel, Henle, and various others. As neither of these authors, however, described with sufficient exactitude the disease of the skin, which its presence occasioned, I also was induced to make observations on this parasite. Some of my researches on man and the dog, were communicated to the Academy of Sciences in Paris, in the month of March 1845. Since then, I have continued to make observations on the disease of the skin, produced by these animals, more especially in the dog, and have traced the effects it has occasioned when permitted to take a natural course.

In man these animals are found in the sebaceous follicles of the skin (more especially those situated on the nose), in persons of every age, and in both sexes. They most commonly occupy the excretory ducts of the follicles, which are often dilated in the places where they are lodged. Their head is always directed towards the base of the gland. When there are many together, they are placed back to back, and their feet are applied against the walls of the duct. When very numerous, they are compressed closely together, and are found deeper in the duct. They rarely exist, however, at the base of the gland.

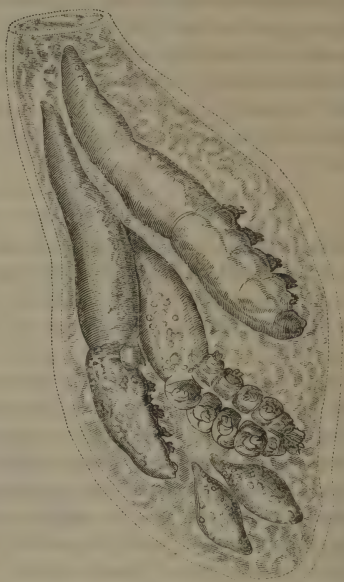
They vary in number according to the age of the individual. In a young person there are generally from two to four; in an

aged individual there may be from ten to twenty. The animalcule exists in the greater number of persons. I found it in forty individuals out of sixty that I examined.

The animalcule is easily found by compressing with two fingers the skin we wish to examine, until the sebaceous matter of the follicle is squeezed out, in the form of a little worm. This matter should be placed in a drop of oil, heated to twenty or thirty degrees, centigrade, then separated with needles, and examined with a microscope, magnifying from two to three hundred diameters, linear.

For the anatomical description and mode of development of these animalcules, I must refer to the excellent accounts given by Simon and Erasmus Wilson, and to the memoir presented by me to the academy. Their form and usual appearance may be understood from the accompanying wood-cut. I need only here observe, that they are nourished by the sebaceous secretion of the follicles. Their movements are slow, whilst the conformation of their articulations only permits them to move forwards and backwards like lobsters. They live for thirty hours in a drop of oil, at a temperature of from twenty to thirty degrees, centigrade, so that their movements can be easily studied. This fact, which shows that air is not necessary to their existence, is in harmony with the absence of respiratory organs, which cannot be detected in them.

Fig. 1.



Cul de sac of a sebaceous follicle, containing three animalcules in different positions, and two eggs. Magnified 350 diameters.

When these animalcules are few in number, the skin presents nothing anormal. If, however, there are many, the skin becomes red, rugous, swollen, and the orifices of the follicles are very evident. Itching, with a frequent desire to rub the organ, is the usual effect when they are present to any extent in the nose.

It is in the dog, however, that I have been best enabled to study the changes in the skin, which the presence of a considerable number of these animals produce. I inoculated a middle sized dog with the parasite more than two years ago, and since that time the animalcules have so increased as to occupy every follicle in his skin. He has lost all his hair, and the skin is as naked as that of

an infant. The epidermis has been elevated in various places, leaving the true skin exposed. Here and there considerable inflammation has been excited, causing scales of inspissated pus to form on the surface, and his general strength is now so reduced that he can scarcely move.

At first it was observed that the hair fell off in spots, varying in size from a fourpenny piece, to that of a shilling. These were covered with small crusts similar to those of an individual affected with *prurigo senilis*. The bald spots gradually became larger, and covered with angular brownish crusts about a quarter of an inch in diameter, resembling those of *impetigo*, which were strongly adherent to the skin. The true skin below became swollen, and the subcutaneous tissue was in places inflamed. On the surface, and in the dermal tissue, a purulent matter could here and there be detected.

On making a section of the true skin, in a place completely denuded of hair, and examining it microscopically, the whole interior of the sebaceous gland was observed to be full of the parasitic animalcules. Their number was so great that it could not be counted. In one cavity alone I have seen upwards of 200. On a surface of much less than an inch square, there must have been about 80,000. Their head and trunk is in contact with the walls of the follicle, the head directed towards its base. Oval eggs of different diameters are more or less mingled among them.

In the brown crusts might be seen blood globules, pus-corpuscles, and animalcules. In the dermal tissue, below these crusts, was a reddish purulent matter, which contained also blood and pus-corpuscles, and animalcules varying in size.

In places where the alopecia is complete, the skin becomes thickened, the lobules of the sebaceous glands disappear, the excretory duct distended with animalcules, acquires a diameter three or four times larger than its natural size. Its orifice is generally closed by a brownish red solid substance, strongly adherent to

Fig. 2.



Vertical section of the epidermis and true skin of the diseased dog, showing the sebaceous follicles filled with animalcules. They may be seen coming out on the surface. Magnified 100 diameters.

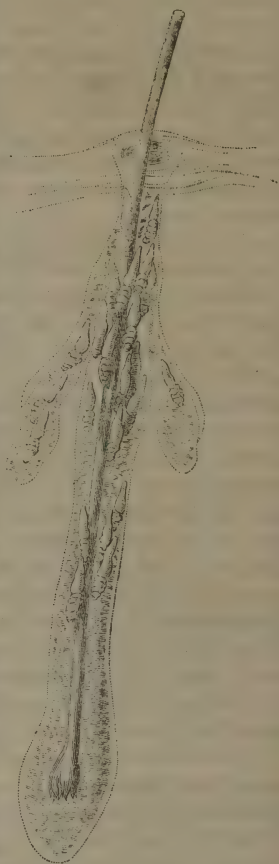
the walls of the duct. It is this closure of the canal which serves to guard the animalcule from external influences.

These parasites almost always penetrate into the follicle of the hair, which then becomes dilated. Their number is variable; but I have seen in this situation from ten to fifty. When they arrive at the root, the hair becomes detached, and falls out by the slightest friction. Before a new hair can be formed, the follicle becomes crowded with the animalcules. In this manner they spread from follicle to follicle, producing baldness in circular patches. In the centre of these patches, where the hair has entirely disappeared, we see the follicles filled with animalcules, as in fig 2; but towards the periphery, where the hair still exists, they are present in less numbers, as in fig. 3.

In the dog, which I have had under observation for two years, the animalcules have spread in this manner over the whole surface, and caused a universal and complete baldness. Thus a parasite which exists in man, as a physiological condition, occasions in the dog a disease of a very grave character.

My object in prolonging the experiment on the same individual, was to ascertain whether these animalcules undergo a metamorphosis, such as some physiologists and naturalists have supposed; that is, that they constitute an intermediary form of development, as is seen in insects. Repeated observations, at intervals of fifteen days, on the same animal, has proved the falsity of this supposition. At present it cannot be doubted, that these animalcules are perfectly developed, and do not undergo any further metamorphosis before their death. The only change I have been able to detect is, that the bodies become larger, and the abdomen shorter.

Fig. 3.



Hair and its follicle, in which may be seen the animalcules descending towards the root of the hair, and cul de sac of the follicles. Magnified 100 diameters.

ARTICLE IV.—*On the Relations which Physiology and Pathology bear to Chemistry and Physics, and the mode of Investigation to be pursued in these Sciences.* By JUSTUS LIEBIG.

(Continued.)

[We continue our translation of Liebig's new Memoir, begun in our last number, notwithstanding that within these few days a translation of the whole has been published in a separate form; because, on comparing that translation with our own, we find ours, without any pretensions to graces of style, to be so much more faithfully close to Liebig's sense, that it must be acceptable to all who take a particular interest in the scientific views of this great leader in the philosophy of organic bodies.]

INDEFINITE IDEA OF IRRITANTS AND IRRITATION.

A number of external causes, such as air, heat, electricity, magnetism, chemical agents, mechanical pressure, friction, &c., produce certain effects upon an organized body, or upon particular parts of it: these effects are in many cases similar, in others different. Like other effects, so are these also produced by a certain amount partly of external, and partly of internal causes, acting on the organization; the internal causes opposing a resistance (*i. e.* a force) to the influence of the external. The existence of these causes acting in the organization is definable, and may be estimated by the qualitative or quantitative difference of the effects produced by the external causes; these are the evidence of a changed condition. The forces acting on the organization are therefore discoverable, by an investigation of those effects, as these are, modified quantitatively or qualitatively by each individual external cause. The mode of investigation pursued by pathologists of the present day, as a few quotations from the celebrated work of Henle (*Pathologische Untersuchungen*. Berlin, 1840) prove, is exactly the reverse of that just mentioned.

“An irritant,” according to him, “is every thing which, acting upon organized matter, changes its form and composition, and thereby its function.”—(*Op. cit.*, p. 223.) Far from regarding the discrimination of causes and effects as a necessary auxiliary to knowledge, all imaginable causes of change in the form and quality of organized bodies become, as we see here, included under the term irritant; and to explain certain conditions, this term here plays the part of something self-existent, though it contains no signification of the mode in which heat, light, electricity, chemical forces, or magnetism operate, but only an expression of a small part of the influence individually of each of these agents. If we substitute, in the following quotation, for the term “irritant,” the definition which the author above quoted has given, we shall then immediately perceive how little gain results to science from such a method as this.

"An irritant alters the nervous fibres, and their relation to the blood; but if it does not completely destroy them, then the interchange of matter continues, nay, perhaps, by the irritation, becomes more active."

FALSE ANALOGIES.

No one will therefore be surprised if, at page 221 of the same work, he find a hypothesis of the mode of operation of an irritant, but in which the author makes not the most distant allusion to the manner in which any thing or cause whatsoever acts, that influencing organized matter, can change its form or composition.

The following illustration of the relation between an organized body and an irritant is characteristic. "What is peculiar to organic matter, is its lasting under change, and its continual advance up to a particular limit. It is not the reaction which is characteristic, but the cessation of the reaction; it does not distinguish itself by its being subject to irritation or change, but by its changes being compensated for, and through all these henceforward the organization developing itself according to its inherent laws. But cords, the tone of which is raised by the irritation of a mechanical pressure, sound higher so long as the pressure lasts, and a metal, if it has been once made elastic by alloying, remains alloyed and elastic. But the organic body ceases to react, even though the irritation continue; and after a chemical influence has changed its material, and increased or diminished its activity, it, in a longer or shorter time, returns to its normal composition and normal amount of activity. How this happens, I shall make obvious by an illustration. Let us suppose a vessel which receives at one side as much fresh water as passes out at the other. Suppose the water in it to be chemically irritated—let us, for example, throw a handful of salt into it. The water reacts upon this irritant, assuming a salt taste, at first strong, but becoming gradually more faint, until, when the water is completely renewed, no trace of the salt remains. This illustration although so simple, admirably suits the point under review." Henle *op. cit.* p. 219.

The author, as we at once see, proceeds in his explanations and demonstrations just as those who treat of physics. He explains the condition of an organized body, whilst he endeavours to prove its similarity or dissimilarity to some other known body; he seeks to maintain his conclusions regarding the peculiarity of a certain phenomenon, by seeking out and comparing similar phenomena which are brought about by well known causes. The natural philosophy of former times, as well as that of a more recent date, has never neglected this method. It involved the error, that certain phenomena which required to be explained, were sought to be brought into connexion and to be compared with others with which they had no real relation, and thus men set out with considering the

causes of similar phenomena as well known, more particularly of those which were most frequently present to their perceptions,—and, because they were familiar to their perceptions, without their really knowing anything about them. By apparent analogies we can make no progress.

EXAMPLES OF FALSE COMPARISONS.

The pressure upon the strings which raises the tone, Henle calls an irritant, as indeed, according to him, all imaginable changes in form, quality, or composition, are caused by irritation. Now the pressure has no direct relation to the quality of the tone; for it only serves momentarily to shorten the strings. Thus also metals do not become more elastic by alloying, because this property is independent of the combination. Between a sounding string, an alloyed metal, or salted water, and an organic body, there is no relation of likeness or unlikeness. The water, the component parts of which are oxygen and hydrogen, undergoes no change in form or composition; it is not irritated, neither does it react in assuming a salt taste—simply because water has no taste.

An organic body cannot be regarded as an exception to a great natural law; it cannot cease to react, if the cause which produces the alteration in its form, composition, and function, continue to operate; and if it has undergone a change by some chemical influence, its normal composition does not return to it or to the substance which has suffered the change. In the language of the natural philosopher, the illustration of Henle would be thus interpreted—just as water can flow out of a vessel perpetually filling itself without a depression of the level of the fluid, so also can the phenomena of life in the animal last, so long as it possesses the power of repairing its losses. An external influence can temporarily change the vital phenomena, just as salt thrown into running water can change its taste. But just as the taste is gradually lost if no more salt be added to the fluid, so also do the changes in the phenomena of vital action disappear, when the causes which produced them no longer continue, the normal functions again regaining their power. In this view we at once see it expressed, that the body has nothing to do with the irritant. Under the given conditions the water in the vessel would maintain its level without the addition to it of salt, that which was originally in the vessel would be renewed, and that which was lost be replaced by other water. Exactly so is it with the organized body; if the afflux to it from without be cut off, then one of its means of renewal and maintenance fails, as the level of the water in the vessel falls,—if fluid be permitted to flow from it without being replaced. The portion of skin destroyed by a red hot iron, or by sulphuric acid, is renewed, not in consequence of a reaction, but because under it a cause of reproduction is at work, the action of which is not called forth by the iron or the acid; it would have exerted its influence

even though the iron or acid had never touched the skin; neither of these has the least to do with its action—for it depends on other causes.

FORMATIVE FORCE,—AN UNDEFINED IDEA.

It cannot be regarded as a proper mode of explaining certain vital phenomena, as, for example, the development of an organized body, from an egg, or germ, the reproduction of original form, &c.; to attribute to them, as their cause, a formative force at work in the organization, because this expression is nothing more, than as it were, a way of designating the phenomena; and why, the salamander reproduces whole limbs, while in the frog, which is closely allied to it, reproduction, as in the higher classes of animals, is limited to only very small portions of tissue," cannot, as Henle thinks, be explained (*Rationelle Pathologie*, S. 129) by these ever existing formative laws; these expressions then amount to this, that such things happen thus, because they do happen thus, and not otherwise. The comprehension of the theory includes an acquaintance with the law, and the comprehension of the law is inseparable from a knowledge of quantitative or qualitative relations.

By a rough comparison, an organized body, in many of its relations, resembles a large sea-going steamer. The vessels use, at every moment of their passage, oxygen and fuel, which again are given off in the form of water, carbonic acid, and soot, or smoke; in them there is a source of heat, and a source of power, which produce the effects of motion, and prepare the means of subsistence to the crew; if a sail is torn, it is repaired by a sailmaker, and if a leak is sprung, it is stopped by carpenters and smiths, and a number of hands are employed to restore the ship to its original condition, and to keep it in motion; so in the living body a number of smiths, carpenters, and artificers, are employed, and our task is to learn to know them and their mutual relations.

LIGHT CONSIDERED AS AN IRRITANT.

If, as by many pathologists, agents which really change the form and composition of an organized body, are included under one word, as, for example, under the term irritant, and some of them embraced under that denomination, do not possess this property, then all understanding of the term is at an end. Light is in itself a phenomenon of motion, and as such is perceived by the eye, because it produces in the nerves of sight a motion which is imparted to the sensorium; this movement, when generated, is propagated just as the tone of a flute, propagated through the air, brings out a note from the string of a piano. The impression produced by light is the motion itself. But this motion alone brings about no change in the form or composition of the eye, or of the brain, unless some new causes are added, and to these new causes belong the operation of reflection, through which the impression is reduced to a well-known sensation, which awakens ideas and images.

That a piece of white paper could, by the light reflected from it, bring about any change in the form or composition of the brain, no one would for a moment imagine; suppose this were the case, then a piece of black paper, which reflects no light, must also produce an effect, but exactly the reverse of the white: but the same black and white, in the form of letters in a book, awaken the most varied feelings, ideas, and images, and by these, and not by the light, is an influence exerted on the quality of the brain.

SOUND AS AN IRRITANT.

With sound it is exactly the same as with light; the vibration of the wave of air is propagated through the ear, and impinges on the nerves of hearing; the motion of the membrane of the tympanum changes the form and composition of that organ, just as little as it alters the form and composition of the minute particles, which receive a similar motion through the same means. The eye will become fatigued in a picture gallery, although it there receives less light than it would do in the open air, during the same space of time. Precisely so is it with sound.

FALSE IDEA OF REACTION.

False ideas, commonly associated with a certain term, are continual causes of misunderstanding, and render it impossible for us to comprehend one another. This is the case with the word reaction, which means an opposing action; but in physiology it is employed in quite a different acceptation. We say the glands react upon an irritant, if their secreting property is increased by any external cause, as we see happens with many of the secretions, during the time of irritation. One property of an organized body consists in this, that the increased activity of the gland does not last, even though the irritation continue, although of course it is in the nature of things that a secretion must cease, when material fit for secretion no longer exists, and that it begins again as soon as a new supply is afforded. The action of the irritant is here not exerted on the gland, but it operates on the cause which uniformly produces the secretion, so that, in consequence of the irritant, it secretes more at one time than at another.

Thus, in the tail of a lizard, a perpetual change and regeneration of particles goes on, and if the tail is cut off, and the separation between the two cut surfaces thereby effected, the forces which belonged to it resisted the separation, by the knife, of the cut surfaces, but no reaction of the vital force upon the knife takes place. The cut surface of the separated tail-piece does not reproduce, but the other portion which remains in connexion with the body, reproduces, not in consequence of reaction, but because its causes of regeneration remain in it uninjured. The body of the lizard does not regain its integrity, if nourishment be withheld. When the tail has grown again, the other parts have, in this case, diminished

in the same proportion in weight and volume. An organized body is, in all its relations, just like other bodies. A number of effects which are brought about in it, by external causes, continue, even when the cause which called them forth ceases to operate; others are balanced when the influencing cause is wanting, because, in the body, forces or causes of resistance possessing uninterrupted vigour exert their power.

VERBAL EXPLANATION NO ADVANCE.

The little profit that physiology acquired, during the period when it was cultivated in the same way as natural philosophy, shows that the most eloquent description of a function of the organized body, as of the process of respiration, for example, or digestion, or some morbid condition, does not suffice for a knowledge of that function, or condition; and that the finest combinations do not contribute to our advance, unless they are supported on a more precise and accurate investigation of the facts previously ascertained, and also those recently brought out. The power of imagination alone, does not enable us to leave our original point of view, and a bare detail of opinions and ideas cannot be called an advance; but can only be compared to a man who, turning himself round in a circle, endeavours to gain the greatest possible number of different points of view. These points of view are also necessary, for, through them, we acquire a knowledge of the direction in which our powers must be applied; but the description of a state of the system, as, for example, of a catarrh, as being an inflammation of the mucous membrane of the nostrils, must never be regarded as a definition, nor as the limit to our investigation of it. A more novel expression for a cold, than an influence acting injuriously on the nerves of the skin, cannot be considered as a real, but merely as an ideal gain.

THE EXERCISE OF OUR FACULTY OF PERCEPTION, A CONDITION NECESSARY TO OBSERVATION.

The correct use of our senses, and the power of appreciating the distance, height, or circumference of an object, can be acquired only by experience and reflection; so also the proper comprehension of a natural phenomenon, and the accurate discrimination of its results, undisturbed by the images which are awakened during the perception of it, can be considered as the attribute only of a well-regulated and well-trained mind.

The botanist by a momentary glance recognises the similarity or the variety of the individual plants around him; the eye of the painter singles out many peculiarities, which the inexperienced eye would in many cases be unable to perceive even with great exertions. In no experimental art is the acuteness and exercise of the perceptive faculty more useful or necessary than in physiology and pathology, and in none are superior mental powers of this descrip-

tion less often met with than in medicine. Hence, then, arise the numerous discrepancies in the comprehension of the simplest circumstances; hence, also, spring a series of the most opposite methods of cure, and the sudden rise and as sudden disappearance of numerous tracts on the insalubrity of a certain district, on the nature of yellow fever, plague, or cholera, written by persons totally unacquainted with the situation of the unhealthy district, or who have never had the opportunity of seeing a case of yellow fever, plague, or cholera. In order to give value to any theoretic view in chemistry or physics, it is absolutely necessary that the person who brings it out, should, by previous practical investigations, have given sufficient proof of his powers of perception and reflection. If this proof be wanting, then his theory, even although it be a correct expression of the truth, remains disregarded, just as contradiction on the part of the so-called theorists does not excite the slightest remark. It required a Berzelius, with his acute powers of perception, to rescue from oblivion Richter's demonstrations, concerning chemical proportions, and to recognise the internal truth and existence of a universal law of union among a mass of fallacies; one statement alone, the imagined existence of a carbonate of alumina, which was made the starting point of the first table of equivalents, was sufficient to throw discredit on all his other facts, though many of them were correct.

ERROR ARISES FROM FALSE OBSERVATIONS AND COMBINATIONS.

Every erroneous mode of viewing and treating a subject depends as well on the point of view in which an individual regards a natural inquiry, as on the want of correct observations, and the incorrect idea which he may have of the nature of an observation; it further depends on the circumstance, that we consider the constant coincidence of two things, or the uniform occurrence of two phenomena as a necessary connexion, that we regard them as in a mutual relation to each other. In nature a number of phenomena occur coincidently, and of these, the one may not be perceived if the other is wanting; but innumerable others occur coincidently, without there being the slightest relation between them. The erroneous supposition of such a connexion springs in all cases from an incorrect mode of observation. Thus, then, the uniting of two phenomena which resemble each other in one respect only, is likewise the consequence of incorrect observation.

OBSERVATION.

To see and to perceive anything is a condition necessary to observation, but seeing and perceiving is not the characteristic of observation. The business of the observer is not to see merely an object, but also the parts of which the object is composed; a good observer must perceive and comprehend the connexion which the

parts of the object have with each other mutually, and with the object as a whole.

EXAMPLES OF ERRONEOUS OBSERVATIONS.—INFLUENCE OF THE MOON IN PRODUCING DEW.

One of the best known examples of erroneous observation is the influence ascribed to the moon in reference to the cold of clear moonlight nights, in the production of dew and hoar frost, whilst the moon is only a spectator in either instance. In an otherwise excellent lecture delivered in Dresden, last year, on the influence of the moon on the earth it was said :—

INFLUENCE OF THE ATMOSPHERE ON EVAPORATION.

“Without an atmosphere we cannot imagine how there could exist water, or any liquid fluid. If our earth could be suddenly stripped of its atmosphere, then would the rivers and seas evaporate, and the earth, in short, become dry, just as we see the experiment performed on a small scale, below the bell of the air-pump.” Here, as we see, a connexion between evaporation and the atmosphere, is supposed and assumed, and which really does not exist. Without atmosphere there could be no clouds, liquid water could not be borne in the form of vesicles of vapour, nor could the watery vapour rise to so great a height, but the atmosphere has no influence on evaporation; under the receiver of the air-pump an equal quantity of watery vapour is produced without regard to whether the same be a vacuum or not.

THE DILUTION OF THE OXYGEN OF THE ATMOSPHERE BY NITROGEN GAS.

In many physiological works we find the notion that the nitrogen of the atmosphere serves for the dilution of the oxygen, to protract and temper its action on the organized body, whilst the amount of oxygen would not change, although the nitrogen were suddenly withdrawn from the earth. Two gases, different in their nature, exercise a certain pressure on the human body, or on the surface on which it rests, but the particles of the one gas do not compress those of the other. If we bring two vases into connexion by means of a glass pipe, the one being full of nitrogen, but the other a vacuum, then the gas spreads itself through both vessels. If both the vessels are of equal capacity, the one contains just as much as the other. Exactly the same thing happens if the one vessel, instead of being a vacuum, be filled with oxygen gas under equal pressure, the nitrogen spreads itself through the vessel containing the oxygen, as though no oxygen were present; the oxygen acts in a similar manner towards the nitrogen.

THE POWER OF THE SUN'S RAYS IN ATTRACTING WATER.

The experience that many mines cannot be worked in the height of summer, in consequence of the water which fills their galleries,

induced many naturalists to ascribe to the sun's rays the power of attracting water; this, say they, is naturally explained in this way: The influence of the sun dries the earth, and vacuities ensue, which must, by capillary attraction, be filled up again from below. We know that a connexion exists between the sun, and the presence of water in the mines; it is simply this: In summer, the rivulets which set in motion the pumps employed in clearing the mines of water, are dried up.

The relation between the drinking of spirits and spontaneous combustion, may be of a similar nature, as this phenomenon happens in drunken persons only; it may be merely, that they fall into a flame, and are thereby consumed.

ORIGIN OF THE ALKALINE CONSTITUENTS OF PLANTS ACCORDING TO BOERHAAVE.

The false idea concerning living and dead matter or of vital and inorganic force, which at this moment separates the department of physiology from chemistry by an immeasurable gulf, rests entirely on the absence of correct, and on the prevalence of incorrect, observations. It is here just as it was with the views which, even in the eighteenth century, were entertained concerning the presence of alkalies in plants, and which are at the present day held in pathology on the growth of crystals, and the nourishment of an organized being. The alkali belonged neither to the fluids nor the solids of the plant; it was a product of the process of combustion. Boerhaave taught his pupils that decayed wood contained no alkali; plants contain just as little alkali as they do glass, although many plants, by combustion, yield a vitreous substance.

FALSE COMPARISON BETWEEN THE COHESIVE FORCE IN CRYSTALLIZATION AND VITAL POWER.

"To the growth of crystals as to that of cells," says Henle, (*Rationelle Pathologie*, 1 Thl. S. 101,) "there is a limit even under the most favourable conditions; but in the former case it is less confined than in the latter. Crystals unite together in aggregate masses like cells, and in consequence of their frequently arborescent arrangement, remind us much of the arborescent arrangement of the elementary parts in the higher order of plants. Living as well as dead bodies, oppose a certain appreciable obstacle to external influences, accommodate themselves to circumstances, and give up their form. The most remarkable coincidence between crystals and individuals in the organized world, is in the manner in which both comport themselves after injuries from external violence. Crystals have, like organic bodies, the property of regenerating lost parts more or less perfectly. In the former, as in the latter, the force which formed them, continues to operate in the body after its formation, independently of its matter, the loss of which it survives and replaces. If a broken crystal be placed in a

fluid, from which it can attract matter similar to itself, it increases, as a whole it is true, but more particularly, and with greater rapidity, at the side where it was injured; so that, in the first place, its proper form is restored; so also a wounded animal, so far as it can, according to the formative laws, first reproduces the parts which it lost out of the nourishment which it receives."

Though it is true that in an organized body the increase in bulk is produced by a force of attraction, there is however no resemblance, even in external appearances, between the growth of a crystal, and the development of an organized structure. The form of a membrane is not fashioned by the physical form of the atoms of an earthy substance, like a crystal of alum, which consists of an aggregate of alum particles, each of which possesses a form perfectly similar to that of the large crystal. The cell is in itself entire, and not an aggregate of smaller cells.

EXPLANATION.

Crystals have not, like cells, a limit placed to their growth. The increase of a crystal is not like that of an organized body, brought about by the influence of internal causes exerting themselves externally, but by a surface attraction. This force acts at all points of its surface; the portions under the surface have no part in its increase, and they may be removed without the surface losing its power of attraction. The new surfaces produced by the breaking of a crystal, exert upon the particles of the surrounding medium, *no stronger attraction* than the other surfaces, and broken crystals *do not first perfect themselves and then resume growing*. By knocking off the angle of convergence of an octohedral crystal, we obtain a four-sided superficies bounded by converging planes. Say that in the crystallizing fluid the body grows in three dimensions, the four planes become longer and broader, and in consequence of their increased length and convergence, the angle is restored; and this will take place even though the broken surface be covered with a varnish. But if one side be removed from a die-shaped crystal of alum, when placed in the mother liquor, it does not increase in greater proportion on the broken surface than on the others; the original die shape will not be restored, just because the power of attraction is not greater on a given space on the broken surface, than it is on a space of the same dimensions on any of the other five surfaces.

A crystal which grows in a saturated solution always increases on one surface in preference to the others, *i. e.* on the surface which is next to the bottom of the vessel, where naturally the salt lye is of the greatest specific gravity, and most abundant in crystallizable particles. There are cases where, in consequence of a difference in temperature between the upper and under surface of a crystal, it increases downwards, whilst the upper parts of the mass lose their form.

(*To be continued.*)

Part Second.

REVIEWS.

Diagnostische und Pathognetische Untersuchungen in der Klinik des Herrn. Geh. Rathes Dr Schönlein, von Dr R. REMAK, &c. Berlin, 1845.

Diagnostic and Pathological Researches in the Clinic of Dr Schönlein, by Dr R. REMAK, &c. Berlin, 1845.

THE chief characteristic of modern pathology and clinical medicine is the advances which are made in both by means of the microscope and organic chemistry. In most of the great medical schools of Europe, we find men who, for the last eight years, have been devoting themselves to rendering these means of research useful in practical medicine, and whose works, published from time to time, can leave little doubt of the great importance which must be attached to their labours. Amongst those who have thus distinguished themselves, Dr Remak of Berlin stands prominently forward. On the death of Dr Simon, who conducted the chemical and microscopical observations in the wards of Professor Schönlein, he was invited to make the necessary microscopical researches, whilst Dr Heintz undertook the chemical department. The results of these researches, carried on during the sessions 1843-4 and 1844-5, are recorded in the volume before us. It is made up of separate memoirs on various subjects in pathology and practical medicine, each containing numerous important and original observations. As these memoirs have no connexion with each other, we can only give an idea of the contents of the work by analysing such as, from their novelty, seem to demand peculiar attention. The first on the list may be called observations

ON THE FÆCAL DISCHARGES IN INTESTINAL TYPHUS.

It was Schönlein who first discovered, in 1835, the presence of prismatic crystals of the triple phosphate as a constituent of the fluid discharges by stool of typhus patients. After death, these crystals may be seen not only on the surface of the intestinal ulcers, but also imbedded in the white tissue at the base of the ulcer. Dr Remak has been unable to find any relation between the number of crystals and stage of the disease; they continually vary in quantity throughout the whole course of the disorder. Generally they are most numerous in very fluid stools, yet sometimes fluid stools

are present in which they are rare. The application of acetate of lead in the form of clyster frequently causes them to disappear for days together. Frequently, also, they are in small amount, when the stools contain many infusoria.

Granular nucleated cells, resembling those of pus, are also found in the fluid stools of typhus patients; they are, however, softer and more delicate. These cells are soon broken down, in common with blood corpuscles, crystals, and, in rare cases, with yellowish flocculi, which may be distinguished by the naked eye. White flocculi are often observed, which are the debris of alimentary vegetable matters. There are also frequently seen bodies, coloured yellow by bile, of an irregular edge and varying form, which likewise appear to be the remains of undigested vegetable membranes. It is worthy of remark that cylindrical epithelium is never met with, although of its separation there can be no doubt. It is probably completely broken down within the intestine.

It is seldom that the quantity of blood is so great in typhous stools as to be recognised by the naked eye. In certain cases, however, the microscope detects red corpuscles in small quantity, which are often more or less changed from their normal character. Not unfrequently they lose their flattened form, and become spherical, retaining, however, their reddish-yellow colour. Sometimes this last has disappeared, and it is difficult to distinguish the pale blood corpuscles among the other elements present. These and other changes are explained by the chemical action of the intestinal contents.

Fat globules are occasionally seen in typhous stools, apparently independent of fatty matters introduced into the intestinal canal by the mouth or rectum. In one case, not only the middle space of several villi was found filled with large fat globules, but they were also heaped together on the surface of the intestinal ulcers. At the same time, the epithelial covering of the diseased portion of intestine had a white appearance, which depended upon the presence of numerous small fat granules within the epithelial cells. Later observations have rendered it very probable, that these fat globules existed in the enlarged lymph vessels, or that, by means of a rupture in these vessels, they had been extravasated into the fibrous tissue, constituting a true lymph ecchymosis.

Cryptogamic vegetations and infusoria are also occasional constituents of typhous discharges by stool. The last are evidences of decomposition and putrefaction of the intestinal contents.

ON THE FÆCAL DISCHARGES IN DYSENTERY.

Although the intestinal discharges in dysentery are externally very similar to those of typhus, the microscopic examination often exhibits a remarkable difference. Thus the crystals of triple phosphate are generally absent. The blood corpuscles are usually less changed in colour and form, and almost always united with long

shreds of coagulated fibrine. The granular cells resembling pus-corpuscles are more finely granular, and mixed with several flat, spherical, and cylindrical epithelial cells, imbedded, as seen under the microscope, in a clear, lengthened, and seeming filamentous mass, apparently the amorphous basis of mucus. Very characteristic, also, is the almost constant absence of vibriones and of confervæ, a distinction less striking in cases of dysentery occurring in the latter stage of typhus, which in the session 1843-4 was observed five times.

In the case of an individual, who every month laboured under spasmodic pains in the abdomen, with constipation, which was relieved by strong vinegar injections, there came away a quantity of skin-like masses, of irregular form, and several inches in circumference. A microscopic examination showed that these were composed of coagulated fibrine mingled with the epithelial scales of the small intestine. They had a sieve-like appearance, similar to that of the glands of Lieberkuhn. The cylindrical epithelium, which lines the cavities of these glands, were seen in their natural situation, but the individual cylinders were considerably changed. The free end of each was enlarged so as to resemble a flattened bladder. It is uncertain whether this was occasioned by the clysters, although an addition of acetic acid to the normal cylinders failed to produce this appearance.

The masses of coagulated fibrine, mingled with epithelium, passed by stool, often seem to the naked eye to be collections of mucus. It is probable that they are frequently discharged through the agency of strong purgatives. Now the physiological importance of the cylindrical epithelium is perhaps greater than that of the other kinds; of the pavement-epithelium for instance. It has frequently been observed that the use of drastic purgatives in individuals labouring under constipation has produced a rapid emaciation and loss of strength. Patients so treated frequently state, that during the treatment large pieces of mucus have come away, which the practitioner has declared to be critical. It is, however, more than probable that the forcible removal of the epithelium from the mucus membrane does not take place without producing an influence on assimilation. The cylindrical does not, like the pavement-epithelium, produce new layers of cells, but consists of only one layer, concerning the re-formation of which we have as yet no exact observations.

An examination of the discharges by stool in dysentery, as in other diseases, leads to a knowledge of the presence of undigested alimentary matters. Sometimes there are found unaltered parts of plants which have been eaten, as vegetable cells, spiral vessels, globules of starch, &c.; at others, portions of meat, as primitive muscular filaments. In a case of diabetes, in which the diet was altogether animal, and where great emaciation existed, the stools were found to consist for the most part of undigested primitive

muscular filaments, which, after repeated examinations, have never been found in the fæces of healthy persons.

PNEUMONIA.

In three communications under this head, Dr Remak indicates the discovery of branched bronchial coagula, almost always present in the sputum of pneumonic patients. They are best discovered by mixing the sputa with water, which seems to separate them from the quantity of mucous and purulent matter that surrounds them. These bronchial coagula form branched cylinders, dividing dichotomously, the branches in general gradually diminishing in length and thickness. Where the branches come off, there is often perceived a slight enlargement, probably similar to that which exists at the division of the bronchi. Sometimes they are somewhat flat, at others they are swoln into nodules here and there. These knotty swellings are evidently occasioned by exudation, which has obliterated one or more air-vesicles.

The coagula which are separated from frothy mucus, and which contain no air bubbles, readily sink in water. Sometimes there may be seen in large cylinders, a canal filled with bloody mucus, so that they might easily be mistaken for the separated walls of the bronchi themselves, an error which is at once made apparent by a microscopic examination.

Bronchial coagula are seen under the microscope to be composed of delicate filaments, running parallel with the long direction of the cylinder, in most cases mingled with or covered by a large number of granular cells, resembling those of pus. The filaments often resemble those in areolar tissue, but are easily distinguished from them by the action of acetic acid, which leaves the fibrous mass perfectly transparent, leaving only the undissolved granular cells, that are very different in appearance from the lengthened form of the nuclei, peculiar to areolar tissue. An external layer of portions of cylindrical-epithelium, furnished with cilia, is found only in rare cases.

There can be little doubt that these bronchial coagula are composed of fibrine, as is found not only by the action of chemical reagents, as seen under the microscope, but by an analysis of Dr Heintz, who showed that they contained a proteine compound.

The granular cells which are mingled with or cover these coagula, have a simple or double nucleus, of $\frac{1}{250}$ to $\frac{1}{260}$ of a line in diameter. A molecular motion of their granular contents may in general be observed, similar to what is seen in the so-called mucous corpuscles. The contents, however, are more finely granular than in the pus-corpuscles usually found in areolar tissue.

The branched bronchial coagula usually make their appearance from the third to the seventh day of pneumonia. They are seldom absent on the fourth or fifth day, and in only a small number of cases are to be seen on the second, or after the seventh day. This

statement only applies to cases where appropriate treatment has been employed from an early period; for, in a man 45 years of age, who was admitted into the Clinic, with all the signs of hepatization, and who had received no medical care, they were found on the fourteenth day.

Delicate coagula with tenacious mucus, for the most part, appear in the sputa, with that state of the lungs in which, on one hand, the crepitating rale is the strongest, and, on the other, the dull tone on percussion indicates the partial obstruction of the pulmonary air passages. But the firm bronchial coagula are generally present in sputa when the crepitating rale has nearly disappeared, when there is bronchial respiration, and when the dullness on percussion points out a perfect hepatization. In some cases it has been determined by auscultation, that in portions of lung, where previously only bronchial respiration could be heard, crepitating and mucous rales returned immediately after expectorating several firm coagula.

An important practical fact has resulted from observing these coagula in the sputa, namely, that the sooner they appear, and the firmer and more numerous they are, the more quickly and surely does a perfect cure take place. In fifty cases it was almost always observed that improvement occurred after the appearance of coagula in the sputum.

Sometimes, though still retaining their form, these coagula are unusually soft, a fact Professor Schönlein has explained by supposing that, in cases where the lungs have not sufficient energy to throw off the coagula, softening takes place within the bronchi. But it is also possible that, in certain instances, the exuded fibrine should from the first possess a less firm consistence. In such cases the coagula appear flaccid, partly broken up, and the branches more or less separated from their main trunks.

The diagnostic importance of the facts now described, is illustrated by the following interesting case:—

A man, 32 years of age, was suddenly seized, while at work, with loss of consciousness, from which he recovered in a few minutes. The patient remained speechless, not however, from paralysis of the tongue, but because the slightest effort to speak produced the most violent pain over the left side of the thorax, in the left shoulder and neck. He had been heard to cough very rarely. When the patient first entered the Clinic, he was almost motionless, his countenance pale and sunken, respiration superficial, and slightly hurried, temperature of the skin diminished, pulse frequent, but small and contracted, urine slightly reddened and scanty, the intelligence so disturbed that the patient was unable, even by signs, to give any notice of his condition. There were occasional efforts to cough, which were repressed by the pain they occasioned, as was evident by the expression of the countenance. It was impossible to learn the state of the respiratory organs by

auscultation, as the slightest contact with the hand, or with a towel over the left side of the chest, produced spasmodic and painful attempts to cough. All the symptoms indicated a lesion of the medulla oblongata, or spinal cord, acting especially on the nerves distributed to the left side of the chest. The expectoration brought up by the efforts at coughing was so scanty as scarcely to cover the bottom of the vessel. It was white and frothy, not tenacious or tinged with blood, and did not appear to deserve a closer examination. When this sputum was mixed with water, however, in the usual manner, there were found in it several white and firm bronchial coagula, of the thickness of a thread. This was enough to constitute the diagnosis of pneumonia, and to show that the nervous symptoms were consecutive and dependent on the idiosyncrasy of the patient. Professor Schönlein stated that he had never met with a case where the skin was so sensitive in pneumonia, and likened it to the excessive sensibility so common in cases of peritonitis, which, as is well known, does not always bear a relation to the intensity of the inflammatory process, and which often continues in considerable force, even after the disappearance of inflammation. A strong antiphlogistic treatment was directed to overcoming the pneumonia. The patient, in a few days, expectorated numerous bronchial coagula, and, at the same time, lost the pain and sensitiveness of the left side of the thorax. On the sixth day the urine, which had formerly been clear, exhibited a whitish cloudy appearance. The microscope showed this to be partly composed of granular mucous cells, and partly of white delicate filaments, of the thickness of a hair, or of a thread, and from one to four lines in length. These filaments presented the structure of coagulated fibrine, mingled with mucous and yellow epithelium cells of various sizes, and here and there seminal animalcules. The discharge of these filaments continued several days, gradually diminishing in amount. When the inflammation and fever had entirely disappeared, he complained of great weakness of the feet; and further examination discovered that, as the result of venereal excesses, he had suffered frequently from gonorrhœa, and for some time from spermatorrhœa. It is probable that some connexion existed between these facts and the excessive nervous symptoms which appeared at the commencement of the pneumonia.

ON THE ORIGIN AND REPRODUCTION OF THE BLOOD,—IMPORTANCE OF THE BUFFY COAT.

From observations upon blood drawn by venesection, Dr Remak was forcibly struck with the influence on the buffy coat of the form of the vessel in which it was received. In a case of pneumonia, in which the blood, received in a shallow vessel, showed no buff, this became apparent in a small quantity received at the end of the bleeding in a glass cylinder. Professor Schönlein there-

fore ordered, that in future all blood obtained by venesection should be received in glass tubes, five inches high, and five-fourths of an inch in diameter. It was now observed that the buffy coat, in cases of inflammation, was always thicker in the second than in the first glass, in the third than in the second, and so on, and that in proportion as the buffy coat augmented in thickness, the lymph or colourless corpuscles of the blood increased in quantity. This led him to make researches on the origin and reproduction of the corpuscles of the blood.

During the summer of 1840 and spring of 1841, Dr Remak made various observations on the blood in the vessels of the *Area Pellucida* and *Vasculosa* of the embryo of the dog, from which he was led to the supposition, that the yellow were formed from the colourless or lymph corpuscles, and could increase by division. With a view of establishing this opinion, he drew from horses the largest possible amount of blood that the animals could bear (50 pounds), and thus made observations daily, by means of the microscope, on small portions of blood taken from veins that had previously not been wounded. It was seen that, in the days which immediately followed the large loss of blood, there was present an unusually large quantity of colourless corpuscles; in many cases they were as numerous as the red corpuscles. About the tenth or twelfth day, although occasionally sooner, several of these granular colourless corpuscles, with a simple or double nucleus, lost their granular contents. There appeared at the same time, on adding water, several colourless cells (of the same size as the others), in which no nucleus could be seen, but only a reddish coloured, round, flat body, almost as large as a red corpuscle, situated in a similar manner, at the side of the cell, as the nucleus of the colourless corpuscle, whilst the clear wall of the cell became prominent by the red body in the form of a watch glass. In the following days it was observed, that whilst the number of colourless corpuscles with these included reddish bodies diminished, there was a quantity of red corpuscles, of smaller diameter than the ordinary red globules, but distinguished from them by the absence of a central depression, and by their spherical form. In the succeeding days this peculiarity also disappeared, and, in general, on the twentieth day after the large blood-letting, the fluid had returned to its normal state. The same appearances were also observed in rabbits, after large bleedings, only that many of these animals died, from the subsequent repeated losses of blood. In those which recovered, an increase of colourless corpuscles was still to be observed in the blood.

Dr Remak considers that the colourless cell enclosing the red body is a red globule, in the nucleus of which a red blood corpuscle had formed, and that similar ones constituted the small or young red corpuscles, when the mother-cell which previously surrounded them had disappeared.

From numerous observations on lymph, especially in rabbits, the author has been able to distinguish two kinds of corpuscles in that fluid,—one as large, and even larger, than the colourless corpuscles of the blood, the other much smaller, both of which he minutely describes.—(Pp. 106-7). The yellowish or reddish tinge of the chyle depends upon the latter, which are sometimes seen under the microscope of a feeble yellowish colour. They are not, however, exactly of the same tint as true blood corpuscles, which, in his numerous researches, he has never seen in lymph, unless they had accidentally flowed from the edges of a wound. From all these observations he is induced to think that the large lymph cells are the maternal cells of blood corpuscles, and that the smaller are the colourless corpuscles.

It is probable that the granular blood cells are not formed from lymph corpuscles, but arise in the blood itself,—an opinion supported by the fact, that they are more numerous in veins than in arteries, which is contrary to what we should expect if they originated from lymph. From the circumstance also, that the commencement of their formation is never seen in the blood, it is not unlikely that they are formed from the cells of the vascular walls. In support of this supposition, an experiment is described, where, having tied the jugular vein of a horse in two places, Dr Remak found, after death, the enclosed coagulum to contain a quantity of these bodies externally, where it came in contact with the vessel. In frogs also these corpuscles are always seen close to the vascular wall. We are reminded, however, that the whole subject is one of uncertainty and difficulty.

The increase of the fibrine in the blood, after loss of that fluid, is for medical diagnosis a fact of great importance, especially as regards the strength of the buffy coat as a proof of the degree of inflammation. It must be doubtful at present, in certain cases, whether the increase of fibrine is owing to inflammation, or previous loss of blood. We have no chemical means of determining this question; for although Mülder has detected a difference between inflamed and normal fibrine, he has not examined the buffy coat occasioned by large blood-letting. Hence its microscopic examination seems to be very important, in order to determine this difference. In upwards of twenty cases of inflammation of the respiratory organs, Dr Remak has determined that, in true inflammations, there is, after the first bleeding, only a small quantity of colourless cells in the buffy coat, whereas in that occasioned by repeated bleedings, they exist in great numbers, and may even constitute one-half of its substance. Thus it is important in diagnosis, not only to regard the strength of the buffy coat in cases of inflammation, but to determine the number of colourless cells it contains; for the fewer there are of these, the higher is the degree of inflammation.

The author concludes this memoir by stating that, for practical purposes, two circumstances are necessary to be attended to in

endeavouring to draw inferences with respect to the buffy coat,—namely, 1st, To receive the blood drawn from a vein into high and narrow glasses; and, 2d, to determine the number of colourless corpuscles which it contains.

We regret that want of space prevents our analyzing more of these interesting memoirs. Those on Glanders in man, Spermatorrhœa, Bright's disease, Muscardine and Favus, and Fungi of the mouth and intestinal canal, are particularly worthy of notice, and deserve a careful perusal. We take leave of Dr Remak, with the hope that he will continue his researches in the wards of the celebrated clinical professor of Berlin, trusting that thereby he will be enabled, at the end of the next two years, to furnish us with another volume, containing contributions equal in importance and merit to those we have so imperfectly noticed.

Guy's Hospital Reports; Second Series. Edited by G. H. BARLOW, M.D., EDWARD COCK, Esq., E. M. BIRKETT, M.B., and ALFRED POLAND, Esq. Vol. IV., 8vo, pp. 498. London, 1846.

We have just received the fourth volume of Guy's Hospital Reports, and we hasten to lay before our readers an analysis of the principal contents of this enlarged volume of a periodical which has now attained an established reputation.

The first paper, by Dr Addison, deserves particular attention, owing to the high interest of its subject.

Dr ADDISON *on the difficulties and fallacies attending Physical Diagnosis in Diseases of the Chest.*

Dr Addison, in some preliminary observations, justly observes, that "The enthusiasm, the rashness, the bigotry and conceit of the too exclusive stethoscopist, have indeed most seriously retarded the adoption, and vitiated the claims of physical diagnosis; and have done more to discourage the student, to shake the confidence of the profession, and to throw ridicule upon the stethoscope itself, than the most inveterate hostility could ever have accomplished." And again, "The truth is, even moderate proficiency in the use of the stethoscope is much more rarely achieved, than many are willing to admit; and I venture to affirm, that the student who shall attempt to acquire such proficiency from a perusal of books, and by an attendance upon patients in the wards of even this large hospital, will, if he rely solely upon his own individual efforts, unaided by an experienced guide, most certainly and most miserably fail in his object."

We believe that there are few individuals acquainted with the present state of medicine who will not subscribe to the first of these propositions, and who is not ready to acknowledge that much of

the presumption, as well as ignorance, which attends the use of the stethoscope, may be attributed to a faulty education. Indeed, students of medicine generally are not taught practically how to use the stethoscope, or any other instrument capable of aiding diagnosis. Among the numerous young men who crowd the clinical wards, it is only the clerks and reporters who possess the opportunity in the first place, and perhaps the inclination in the second, of going through the drudgery of educating their ears, eyes, and understandings. When at length they become practitioners, it is thought necessary to go through the form of a stethoscopic examination occasionally, as a matter of course, more however to deceive the public, and give an *appearance* of accuracy, than with the hope or capability of deriving from it sound information. Yet how can they be blamed? It is only the form of an examination which they have seen, and it is only with that they can be acquainted. In short, the method of teaching clinical medicine requires a complete revolution. The system of wearisome lectures, should give place to a system of instruction at the bedside, in which all present should participate. The student should be taught how to employ the stethoscope, pleximeter, microscope, and every means of research, to use his own senses, instead of those belonging to his teacher, and to draw his own conclusions from the facts presented to him, instead of blindly adopting those that are put before him.

Dr Addison, in the paper before us, points out numerous circumstances which are liable to mislead the auscultator. These are given in the form of forty-two propositions, interspersed with very valuable remarks, and clinical notes. Coming from a gentleman who has practised auscultation and percussion, for a quarter of a century, in a large metropolitan hospital, and from one of the acknowledged ability of Dr Addison, we are necessarily obliged to receive these observations with respect and deference. At the same time we cannot help remarking, that many of the propositions must be quite familiar to those accustomed to make accurate physical diagnosis, and that there are a few the correctness of which may be considered as doubtful. The following sentence, however, at the end of the essay, is enough to disarm criticism:—"My object has been to acknowledge and point out the many difficulties and fallacies which I have myself had to encounter in the practice of physical diagnosis, without presuming for an instant to suppose that they would have proved equally embarrassing to other stethoscopists."

A careful perusal of Dr Addison's paper has led us to suspect that many of the fallacies which he mentions in detail, are owing to a faulty method of performing percussion. We do not know how this is practised at Guy's hospital, or in the clinical wards of Dr Addison, but we presume it must be with the fingers alone. On no other supposition can we account for the following statements:—

"When the bronchitic complication in phthisis is considerable, we often fail to detect some, or all, of the ordinary physical signs of the latter, dulness on percussion, tubular respiration, and even bronchophony or pectoriloquy."—Prop. 10.

"When the anterior and inferior portion of the left lung is consolidated by pneumonia, percussion may produce good resonance, in consequence of the proximity of the flatulent stomach, and thereby throw us off our guard. When pneumonic consolidation takes place anteriorly and inferiorly, and even posteriorly on the right side, a remarkable degree of resonance is occasionally elicited in a highly tympanitic condition of the intestines."—Prop. 21.

"When pleurisy occurs low down in the angle between the ribs and diaphragm, and especially when situated anteriorly, a considerable period, perhaps several days, may elapse, before auscultation can detect either pleuritic rubbing, ægophony, bronchophony, or tubular respiration; whilst percussion proves fallacious in consequence of the presence of the liver on the right, and of the inflated stomach on the left side."—Prop. 25.

"When the effusion into the chest is of the purely serous kind, or when the proportion of albuminous material is very inconsiderable, the fluid gravitates to the floor of the cavity, and may, unless very abundant, entirely escape detection, either by auscultation or percussion."—Prop. 26.

"Nevertheless" (in Pericarditis), "when effusion has taken place to a certain amount, the friction sound commonly disappears; and auscultation" (is percussion included?) "fails to recognise the disease."—Prop. 31.

"Enormous accumulations of fluid in the pericardium cannot by physical signs be distinguished at all times from effusion into the cavity of the pleura."—Prop. 32.

Now, we of course do not mean to deny that mistakes may occasionally happen to the most skilful in diagnosis, from hurry or inattention. We are only unwilling to have it supposed that the propositions we have copied embody the actual state of physical diagnosis in this country. All that we can gather from them is, that Dr Addison is not able to percuss, so well as he auscultates, or that he does not use the pleximeter adroitly; at least we are satisfied that no well informed pupil of Piorry or Skoda would ever think of making such confessions as the above.

Some of the propositions are so obvious and well known, that we are surprised to find them stated as sources of fallacy to a practising physician. We may cite propositions 1 and 37 as examples of this. On the whole, however, this paper will be read with pleasure and instruction by every practitioner, and may even be regarded as a valuable contribution to the physical diagnosis of diseases of the chest.

The next paper, by Mr France, on Ptosis, possesses very considerable interest for the student of the pathology of the nervous system.

Examples of Ptosis, with Illustrative Remarks. By JOHN F. FRANCE.

In this paper twelve cases of Ptosis, some more, some less, particularly are reported. Of Ptosis, or Blepharoptosis, surgical writers have commonly described two forms, one paralytic, from affection of the motor nerve, the other from thickening and extension, and consequent increased weight of the palpebral integuments

resisting the contraction of the levator muscle. Beer appears to regard the latter as the only form of this disease; and it has been common, even with many who admit the paralytic form, to represent it as merely part of a more general paralytic state of one side of the face, or even of an imperfect hemiplegia. The cases reported by Mr France show unequivocally that true paralytic ptosis is not an unfrequent affection, and that, while it is sometimes connected with a general paralytic or apoplectic tendency, it is often a purely local affection, dependent on a morbid state of the third pair of nerves or motor communis oculorum. One case, which proved suddenly fatal, is particularly instructive: the patient was a somewhat stout and short-necked girl, accustomed to an over full diet. For a month previous to admission into the hospital, she had suffered from headache and giddiness, and, five days before she came in, she was suddenly seized with pain in the head, over the right eye-brow, accompanied by faintness and vomiting—leeches were applied with relief; but the next morning she found the right upper eye-lid dropping, and vision on the same side impaired. She was afterwards bled, leeches, and purged, notwithstanding which the fall of the lid and the impairment of vision had both increased. On her admission, “the right superior palpebra was dropped to such an extent as still to cover half the cornea, when raised as much as practicable, without wrinkling the forehead: the movements of adduction, elevation, and depression, of the right globe, were more limited than natural: that of abduction was perfect. The right pupil was about thrice the diameter of the left; but separately and conjointly contractile, though to a slight extent only. Vision on the affected side was considerably impaired, so that the patient read the large letters over her bed imperfectly; and the light was somewhat painful to the same eye. Diplopia arose on regarding an object at more than a short distance to the left of the median line: the left eye was unaffected. She was free from pain and giddiness; and, except for the condition now described, felt quite well: the bowels were stated to be open, and the menstruation regular: the pulse was stated to be feeble.” She was under treatment for a fortnight, when, without any previous warning, she was found insensible, discharging froth at the nose and mouth, and with a deep low stertor, and death took place in four hours. The contents of the chest and abdomen were found healthy: there was a considerable recent extravasation of blood at the base of the brain. The hemorrhage had taken place from the posterior communicating artery of the carotid on the right side, through the parietes of which was an aperture, overlaid by a circumscribed clot of about the size of a large pea. Under this the right nerve of the third pair was spread out, having obviously undergone a degree of compression by this older effusion, more than sufficient to explain the arrested functions of the nerve. Upon section, the tumour proved to be a solid clot.

It is worth remarking, that in nine out of the twelve cases of ptosis recorded by Mr France, besides this fatal case, there was dilatation of the corresponding pupil. This circumstance gives a high physiological interest to Mr France's paper, as confirming the opinion entertained of late by physiologists, that the contractions of the pupil are produced by the third pair of nerves. When the paralysis is confined to the upper division of the nerve of the third pair, "the division, which is expended in the supply of the levator palpebræ and rectus superior muscles, and is unconnected with the lenticular ganglion and the ciliary nerves," then there is an affection of the pupil, as in Mr F.'s first example. We would recommend, then, Mr F.'s paper, not merely to our practical readers, as containing information bearing on a disease which is far from being unfrequent, but also to those whose curiosity prompts them still to follow the onward progress of physiology.

The next two papers, which, together, occupy more than a hundred pages of the volume, do not admit of an analysis: the first consists of a report of the Clinical Society from January 1845 to March 1846, in two parts,—the surgical division by Mr Alfred Poland, the medical division by Dr E. Bentley; the second a clinical report of cases admitted into Petersham ward from June 1845 to June 1846, by Mr J. C. W. Lever. In the surgical division of the Clinical Society's Report, an abstract of 1683 surgical cases is given, and in the medical division, a similar brief abstract of 651 medical cases. We subjoin a few specimens of the character of these abstracts. Under the head of "Injuries and Diseases of the Lungs and Appendages, we find

"One case of a foreign body, a sixpence in the trachea; no symptom was observed but an occasional spasmodic cough. Conjectures were raised as to its position, and even as to its presence. The stethoscope elicited a metallic sound: tracheotomy was urged by some, but considered unadvisable; and in the night, during a paroxysm of coughing, the man ejected the coin, and was soon presented in good health."—P. 68.

Two cases of phlebitis; one acute, the other chronic—both fatal:—

"The case of acute phlebitis occurred in a young man aged twenty-five, of bad health and constitution, who had received a kick on the arm, to which leeches had been applied. Phlebitis ensued with severe constitutional symptoms; a livid appearance of the skin, in the neighbourhood of the blow, ensued; an incision was made, and a dead leech found imbedded. No wound, except a leech bite, could be observed externally to account for its entrance. The man, however, died exhausted, and no autopsy was allowed. The case of chronic phlebitis was in a person aged thirty-two, who had an abscess about the ankle, which was opened: œdema of the right leg supervened; and subsequently vomiting and impaired health. The limb was placed on an inclined plane, and bandaged, and alteratives and quinine administered. The scrotum and prepuce became œdematous, as also the left leg; he had nausea and albuminous urine; his health gave way; petechiæ made their appearance, and he sank rapidly. On microscopic examination, the vena cava inferior and right iliac vein were found obstructed by coagula adherent to the inner coat; the left iliac vein was contracted; the kidneys were granular; and the lungs were affected with pneumonia."—Pp. 69, 70.

Under the head of Ulcers—

“ Ten were sloughing ulcers, all on the foot and leg : in two the warm water dressing was used ; in two the beer-grounds poultice and tonics ; in one the nitric acid lotion ; in three the terchloride of carbon ; and in two the linimentum opiatum. All did remarkably well ; the two latter applications with marked results.”—P. 77.

Under Dislocations—

“ One case of dislocation of the sternal end of the clavicle backwards, producing pressure on the trachea and œsophagus. It occurred in a sailor, aged seventeen, from a blow on the shoulder : it was easily reduced by drawing the shoulders back, and was maintained *in situ* without difficulty.”—P. 89.

“ Under Injuries and Diseases of the Thecæ, Bursæ, and Tendons, are comprised twelve cases ; five of which were inflamed bursa patellæ, all females between the ages of fourteen and thirty-five, all single, and servants : two were the result of blows, and three were idiopathic ; four were cured ; one by leeches and purgatives, two by incision, and one by suppuration ; the other one was complicated with an ulcer over the bursa, and left unrelieved, after every possible treatment ; but this was afterwards accounted for by the patient having kept up irritation, by inserting a piece of bone into the wound every night.”—P. 90.

Our limits prevent us from extracting more from these Reports. The next paper is entitled.

On the Physiology of Cells, with the view to elucidate the laws regulating the Structure and Function of Glands. By THOMAS WILLIAMS, M.D., London.

This is a very elaborate essay on the structure and functions of the liver, founded on a minute anatomical investigation of the organ in all the lower tribes of animals, as well as in man. It is illustrated by numerous figures and diagrams cut in wood, without which it is scarcely possible to give an idea of the author's views. Dr Williams differs in many important points from Bowman and Goodsir, and does not hesitate here and there to stretch analogy a little further, perhaps, than is warrantable. The following is an instance of this. Speaking of the liver in the highest classes of animals, he says.—

“ The interstices of the capillary rete can be readily shown, by the microscope, to contain the glandular cells of the organ ; and, as analogy and observation have conspired indisputably to prove that the interposition of a limiting membrane between the blood vessel and secreting cell is indispensable, the inference seems irresistible that this essential membrane must exist, and that it must be moulded around, and identified with, the outer coats of the blood vessels.”—P. 330.

Then comes a diagram founded on the structure *imagined*, in which, so far as we can understand it, the expanded extremity of the biliary tube is made to hold an analagous position to that of the expanded urinary tube, as described by Bowman. This is a very unsafe method of proceeding, more especially as the anatomical facts described by Bowman, regarding the connexion of the

urinary tube with the Malpighian body, is still denied by many distinguished anatomists.

The structure and functions of the liver constitute one of the most obscure portions of anatomy and physiology. We can, therefore, cordially recommend the study of Dr Williams' paper to all who feel an interest in this intricate subject of inquiry.

The two papers which follow refer to the same case.

Case of Supposed Spontaneous Perforation of the Stomach terminating successfully. By H. M. HUGHES, M.D., with a continuation of the case by EDWARD RAY, and an account of the Inspection of the Body by JOHN HILTON, F.R.S.

This is a case of great practical interest, in the treatment of which Mr Ray of Dulwich, and Dr Hughes of Guy's Hospital, deserve great credit.

Sarah C——, aged 28, a domestic servant, after doing some slight household work, complained suddenly, at 4 P.M., of severe pain in the stomach, followed by a state of extreme collapse. When seen shortly afterwards by Mr Ray, her countenance was expressive of great anxiety, the extremities and the surface of the body generally were cold, and the pulse was scarcely perceptible. She was sensible, and complained of constant pain in the right shoulder. The abdomen was not tumid or tender upon pressure, except in the epigastrium. Twenty minims of tincture of opium were given in a little water, and repeated at five o'clock. At six P.M. she expressed herself as somewhat easier; the pulse was more readily felt; the extremities and skin were still cold; she had some retching, but no vomiting; and she had passed some urine. A grain of opium was given in the form of pill, and repeated at half-past seven, at which time she was carefully removed in a fly to Guy's Hospital, where she arrived about half-past eight, somewhat rallied. When visited, after being put to bed, the countenance was sunk and anxious; the face pale; the extremities rather cold; the tongue moist and creamy; the pulse 110, small and feeble; the respirations 34, and rather catching; the abdomen large and tympanitic, but not to any great extent; the pain had greatly diminished; and tenderness on pressure existed only in the epigastrium. Perforation of the stomach was diagnosed; but, under the treatment employed, she gradually recovered, and was discharged cured on the fifty-second day after admission. The nature of this treatment will be understood from the following *resumé*, which we give in the words of Dr Hughes:—

“ The indications which it was considered important more particularly to carry out, were as follows: 1st, To keep the stomach almost perfectly empty, so as to prevent the possibility of effusion. 2dly, To administer opium in considerable doses, to prevent sickness and inordinate action, and to subdue arterial or nervous excitement. 3dly, To keep the patient strictly to one position in bed, so as to favour the formation of adhesions, and to prevent their disruption when they had been formed already.

"The entire merit of the initiatory treatment is due to Mr Ray. Had stimulants and purgatives been at first administered, it is almost certain that no subsequent plan of treatment could have saved the patient."

Opium, quiet, and starvation, were the three remedies employed. The opium was administered in moderate doses only, as they appeared to have the desired effect; and those doses were diminished as soon as the symptoms appeared to justify the reduction. In the first twenty-four hours the patient took between seven and eight grains of the drug, without any of the ordinary effects of opium upon the brain, the iris, or the tongue, being at any time noticed. This fact itself appears to indicate that some very severe disturbance existed in the system. After the first twenty-four hours, the patient took only four grains in the day and night, and this quantity was soon reduced to three grains. By the mouth, she took no other medicine of any kind. Warned by the unfortunate experience of Dr Stokes in one of his cases, it was determined to administer no aperient. On the seventh day the bowels acted spontaneously.

"For a period of eighteen days the patient was not allowed to move, or to be moved, in the slightest degree, from the supine recumbent position. When the bed became hard and uncomfortable, she was removed in a sheet, without any alteration of her position, to another already prepared for her. The enemata were administered as she lay upon her back.

"For a period of forty-eight hours, the only sustenance allowed her was two tea-spoonfuls of toast water, given every hour. Before the expiration of that time, she began to complain bitterly of thirst. It was then that an injection of five ounces of strong beef tea, with a little laudanum, was administered. Her thirst was immediately assuaged, and was never afterwards complained of. The injections were afterwards administered regularly three times a day, for twenty-seven days, and did not return in a single instance. The fifteen ounces of strong beef tea thus administered in the course of twenty-four hours, constituted her principal support for seven days, during which she was only allowed, in addition, occasionally to suck a single tea-spoonful of beef tea jelly; and for two days after, to take only two table-spoonfuls of strong mutton broth at any one time. She was not allowed any solid food, even soaked in her broth, till the twentieth day after her attack. On two occasions, in the more advanced progress of the case, a castor oil injection was ordered, to relieve the bowels; but it was found necessary to administer it only once. On two occasions an increase in the quantity of laudanum given with the injections was prescribed, to restrain a slight tendency to diarrhoea. It had the desired effect.

"When discharged upon the fifty-second day, she had, for six days, taken a mutton chop, and digested it without pain or distress."—P. 342.

On the 21st of June, she was again seized about four P.M. with severe pain in the stomach, and fainted. Brandy and water was administered before Mr Ray was sent for. He found her suffering under the usual symptoms of perforation of the stomach, of which lesion, occasioning peritonitis, she died on the following evening at eleven P.M.

The body was examined twenty-five hours after death. On making a small opening into the peritoneum, air escaped in a continuous stream. On exposing the abdominal viscera, the recesses between them were found to contain a considerable quantity of turbid fluid, containing portions of gooseberries, cherries, and strawberries, in addition to very numerous small shreds of lymph. A few old adhesions united the abdominal parietes to the intestines, and to the stomach. Numerous patches of recently exuded lymph, varying in size, covered the peritoneal surfaces.

The stomach presented a slight hour-glass contraction. On opening the organ, its contents were found to consist of cherries, strawberries, and gooseberries, scarcely broken. The mucous surface was healthy, except at about midway between the œsophagus and pylorus, and towards the smallest curvature, where it presented the rugæ of the mucous membrane radiating towards the pylorus from a small surface, which had all the appearance of a cicatrix of an old ulcer; half an inch below this part was seen a recent ulcer, about the size of a fourpenny piece, irregular in outline, its edges unequal in thickness and highly vascular; it had extended through the mucous membrane and the submucous fibrous structure, as far as the muscular fibre. On looking to the peritoneal surface of the stomach, corresponding to the internal position of this ulcer, there was no evidence of any recent inflammation. About half an inch above the cicatrix, to which reference has been made, was placed the base of a conical canal, passing upwards and backwards obliquely through the stomach, which had allowed the escape of some of its contents into the peritoneum, and so caused the death of the patient. The length of this canal was about half an inch from its base to its apex; it was a hollow cone, having thick and firm parietes, its base at the mucous, and its apex at the peritoneal surface of the stomach. The base was somewhat oval in outline, measuring half an inch in its longer, and a quarter of an inch in its shorter diameter, with the mucous membrane slightly contracted towards the canal; the apex, or peritoneal aperture, had also an oval, but much smaller, circumference, with well defined sharp, but smooth, edges.

Mr Hilton considers that the cicatrix, which did not extend through the wall, or the ulcer in active progress, were unconnected with the death of the patient. He thinks that the perforating ulcer which caused this was the same which induced her previous illness; and that the peritoneal opening became closed by the deposition of adhesive matter around it, fixing it to the nearest organ, the liver; and that the occlusion was complete up to the period of the beginning of the recent fatal symptoms, when some of the old adhesions were detached or broken through, from the distension of the stomach by a large quantity of fruit, or possibly by some other mechanical cause, which does not appear, and so allowed the second escape of the contents of the stomach into the peritoneum. We consider this explanation of Mr Hilton's to be the correct one, and as he observes, it points out the fatal indiscretion of distending the stomach in such cases. It further counsels the propriety of carefully abstaining from any large quantity of food at one meal, of avoiding every thing not easy of digestion, or likely to produce flatulency, and the careful avoidance, for many months, of any undue pressure upon the abdomen: forasmuch as any one of these circumstances might lead to a disturbance of the adhesions, and death, as happened in this case.

Three papers still remain, for an account of which we cannot make room at present.—One by Mr T. Wilkinson King, entitled “Appearances in the Stomach after death;” another by Dr H. M. Hughes, “Digest of one hundred cases of Chorea treated in the Hospital;” and the last, “Cases and Observations in Medical Jurisprudence,” by Mr Alfred S. Taylor.

Experimental Researches on the Food of Animals, and the Fattening of Cattle, with Remarks on the Food of Man. By ROBERT DUNDAS THOMSON, M.D., Lecturer on Practical Chemistry, University of Glasgow. 12mo, pp. 195. London, 1846.

WE learn from the preface of Dr Thomson's work, that it is founded on an extensive series of experiments undertaken at the instance of government. The original object of these experiments was to ascertain the effect of malt as compared with barley in the feeding of cattle; but permission was afterwards obtained to extend the range of the experiments so as to make them applicable to the solution of some of the great problems involved in the proper management of man and animals, as regards nutrition.

The most important problem which the author believes he has resolved, refers to the kind of food from which the fat of animals is derived. Admitting it as a settled fact that the muscular parts of animals are sustained and recruited from nitrogenized aliments, which, in the food of the carnivorous, are principally the muscular flesh of other animals, he proceeds to inquire if the fat be in like manner derived from the oily aliments. And this question, founding on his own experiments, he decides in the negative, and affirms that the fat of animals cannot be produced from the oil of the food, but that it originates jointly from the non-nitrogenized and nitrogenized materials of nutrition. “By following out this principle,” he says, “the author has been enabled to detect an important relation subsisting between the nutritive and calorifiant portion of the food, upon the determination of which, for the various conditions of animals, he considers the laws of dieting depend. He has endeavoured to apply the law to various articles of human food; and he trusts that the basis has been laid for future researches, which may be directed to administer to the health and comfort of mankind, and of domesticated animals.”

Our author, instead of adopting Liebig's terms, namely nutritive and respiratory food, proposes the corresponding terms nutritive and calorifiant, or heat-producing. We confess we prefer retaining Liebig's terms, notwithstanding that the latter term, perhaps, suggests too narrow a limitation of the mode in which the living system operates on the non-nitrogenized aliments. But our author's term, calorifiant or heat-producing, is really more objectionable, as implying that the non-nitrogenized substances are the sole

heat-producing aliments. Our author no doubt assumes, though for the assumption we hardly see sufficient grounds, that the nitrogenized aliments cannot be heat-producing, unless they have previously entered into the substance of the animal tissues in the process of nutrition; in short, his view is, that the nitrogenized constituents of the animal solids, by becoming decomposed within the body, may maintain animal heat; but that the same substances, taken into the alimentary canal as aliments, are not in that state, heat-producing. As we think the data afforded insufficient to elucidate this point, we pass it by for the present.

Be this, then, as it may, it is true, as our author remarks, that a much larger proportion of respiratory or calorifiant, than of nutritive aliment is required. Dr T. illustrates this important fact by giving a table of the amount of the ultimate constituents in the food consumed in one day by a stall-fed cow, and applying to their whole amount a formula derived from the ultimate constitution of nitrogenized aliments, he infers, that of the 26 lbs. of food consumed, little more than a pound and a half consisted of nutritive aliment. On this comparison Dr T. remarks:—

“ A true system of dieting would, therefore, require such tables for each condition of animals, in order that a comparison may be instituted between the wants of the system, and the food. If this mode of viewing the question be correct, then the relation of the nutritive part of the food absorbed by the animal system in the preceding experiment, is to the calorifiant portion as 1 to $8\frac{1}{2}$ nearly. By comparing this fact, then (which is independent of all hypothesis), with the different varieties of human food, it is probable that some light may be obtained in reference to the differences in the relative proportion of these constituents. Milk, for example, the food of the infant mammalia, contains one part of nutritive to two parts of calorifiant constituents; and in the growing state of an animal, the nutritive part of the food not only supplies the place of the metamorphosed solids, but an additional amount of it is required to increase the bulk of the individual; and, as we have already stated, that animal heat is generated by the change or degradation of the fibrinous tissues, it is obvious that, in the nourishment of infant life, there is a supply of heat from the casein, vastly superior to that afforded by fibrine supplied to full grown animals, because the amount taken in proportion to the quantity of calorifiant matter is much greater. If we refer, again, to the food which is generally employed by the inhabitants of this country, wheat and barley, we find, by a mean of experiments afterwards to be detailed, that the average amount of albuminous matter present in them is 11 per cent., while the quantity of starch and sugar existing in these substances, may vary from 70 to 80 per cent., thus affording the proportion of nutritive to calorifiant food as 1 to 7, and upwards. Such food, it may be inferred, is fitted for the consumption of an animal which is not subjected to much exercise of the muscular system; and may be viewed as the limit of excess of the calorifiant over the nutritive constituents of food. As the demands upon the muscular part of the frame become more urgent, the proportion of the azotized or nutritive constituents should be increased, and this may be extended till we arrive at the point where the fibrinous matter is equal to the half of the calorifiant, which is probably, in a perfectly normal physiology, the greatest relative proportion of nutritive material admissible.

“ The proportion of the nutritive to the calorifiant constituents of food should therefore vary according as the animal is in a state of exercise or rest; and it is upon the proper consideration of such relations that the true laws of

dieting depend. For calculations of this nature, tables exhibiting the amount of albuminous matters in the different articles of food are indispensable, as they afford at a glance the required knowledge. The constituents of the flours used as human food are principally albuminous matter, calorifiant matter, water, and salts; so that when we have determined the amount of albuminous substance in the dried condition of the flour, the remainder may be estimated as calorifiant matter without any sensible error."—Pp. 161-65.

From our author's table of the approximate relation of nutritive to calorifiant matter in different ailments, we cite the following particulars:—In milk—food for a growing animal,—the nutritive matter is to the calorifiant as 1 to 2; in beans, as 1 to $2\frac{1}{2}$; in oat-meal, as 1 to 5; in semolina and barley, as 1 to 7; in English wheat flour—food for an animal at rest—as 1 to 8; in potatoes, as 1 to 9; in rice as 1 to 10; in turnips, as 1 to 11; in arrow-root, tapioca, and sago, as 1 to 26; in starch, as 1 to 40. And this table he follows up with the following observations:—

"From this table we are led to infer that the food destined for the animal in a state of exercise should range between milk and wheat flour, varying in its degree of dilution with calorifiant matter according to the nature and extent of the demands upon the system. The animal system is thus viewed as in an analogous condition to a field from which different crops extract different amounts of matter from the soil, which must be ascertained by experiment. An animal at rest consumes more calorifiant food, in relation to the nutritive constituents, than an animal in full exercise. The food, therefore, employed by a person of sedentary habits should contain more calorifiant and less nutritive matter than one whose occupations cause him to take more exercise. It is to be desired that some light should be thrown on this subject by careful experiments. The food of animals and the manure of plants we thus see afford somewhat of a parallelism. Milk may therefore be used with a certain amount of farinaceous matter, such as the class of flours and meals, with probable advantage; but the dilution should not exceed the prescribed limits. It is thus that we may explain the fact of beans, oats, oat-meal, and barley-meal being used so extensively in the feeding of horses. These articles of food, however, do not suffice alone: calorifiant matter in the form of hay should also be administered. From this table, likewise, we infer, that as nature has provided milk for the support of the infant mammalia, the constitution of their food should always be formed after this type. Hence we learn that milk, in some form or other, is the true food of children, and that the use of arrow-root, or any of the members of the starch class, where the relation of the nutritive to calorifiant matter is as 1 to 26 instead of being as 1 to 2, by an animal placed in the circumstances of a human infant, is opposed to the principles unfolded by the preceding table. In making this statement, I find that there are certain misapprehensions into which medical men are apt to be led at the first view of the subject. To render it clearer, let us recal to mind what the arrow-root class of diet consists of. Arrow-root and tapioca are prepared by washing the roots of certain plants until all the matter soluble in water is removed. Now, as albumen is soluble in water, this form of nutritive matter must in a great measure be washed away: under this aspect we might view the original root, before it was subjected to the washing process, to approximate in composition to that of flour. If the latter substance were washed by repeated additions of water, the nitrogenous or nutritive ingredients would be separated from the starchy or calorifiant elements, being partly soluble in water, and partly mechanically removed. Arrow-root, therefore, may be considered as flour deprived as much as possible of its nutritive matter. When we administer arrow-root to a child, it is equivalent to washing all the nutritive matter out of bread, flour, or oat-meal, and supplying it with the starch; or it is the same

thing approximately as if we gave it starch; and this is in fact what is done when children are fed upon what is sold in the shops under the title of farinaceous food, empirical preparations of which no one can understand the composition without analysis. Of the bad effects produced in children by the use of these most exceptionable mixtures I have had ample opportunities of forming an opinion, and I am inclined to infer that many of the irregularities of the bowels, the production of wind, &c., in children, are often attributable to the use of such unnatural species of food. How often are the ears of parents and nurses distressed with the agonizing cries of the helpless child, and how often are these symptoms of suffering treated as the effects of ill-humour, or of causeless peevishness, when, on the contrary, they have been produced by the improper diet, in many cases, with which the child has been supplied. It should be remembered that all starchy food deprived of nutritive matter is of artificial production, and scarcely, if ever, exists in nature in an isolated form. The administration of the arrow-root class is therefore only admissible when a sufficient amount of nutritive matter has been previously introduced into the digestive organs, or when it is inadvisable to supply nutrition to the system, as in cases of inflammatory action. In such instances the animal heat must be kept up, and for this purpose calorifiant food alone is necessary. This treatment is equivalent to removing blood from the system, since the waste of the fibrinous tissues goes on, while an adequate reparation is not sustained by the introduction of nutritive food. A certain amount of muscular sustentation is still, however, effected by the use of arrow-root diet; since, according to the preceding tables, it contains about one-third as much nutritive matter as some of the wheat flours. The extensive use of oat-meal, which is attended with such wholesome consequences among the children of all ranks in Scotland, is, however, an important fact deserving of serious consideration; and, it appears to me, is strongly corroborative of the principles which, I have endeavoured to lay down in the preceding pages. After the explanations which have been given, it is scarcely necessary to particularize further the specific nature of the food to be recommended for the use of children. A certain admixture of milk, the natural type of the food, is still to be retained while the solid matter to be prepared along with it may be of great variety, such as bread made into panado, semolina or pounded wheat; I believe this kind of food, which is sold in the shops, to be generally prepared from wheat brought from a more temperate region than that of this country, in consequence of the amount of nitrogen which I have found in it. The best American wheat flour, good Scottish oat-meal, and barley-meal, may all be employed at different times by way of variety, and repeated according to the agreement with the child's organs of digestion. The digestion of all these forms of food containing starch is greatly promoted by long boiling either with water or milk, as this process is just so much labour saved to the intestinal organs. It is thus obvious that we have a great variety of food fitted for children of which we know the composition, and that we should prefer it to any species of compound stuff of the constitution of which we are ignorant. It is a sufficiently remarkable fact, that oats increase in nutritive power in proportion to the increase of latitude within certain limits, while wheat follows an inverse law. Those who are in the habit of representing mankind as the 'lords of the creation,' who take the limited view of considering all that we see around us as created merely for their use, misapplying the thought—'the proper study of mankind is man;' and who thus, with the characteristic vanity of earthliness, follow the footsteps of Kant, profanely attempting to survey the divine mind, will discern probably in this curious circumstance further proofs of their theory, as if to show 'how little can be known.'"

The conclusion to which Dr Thomson's experiments have led him in the original object of his inquiry, namely, as to the relative nutritive properties of malt and barley, is decidedly in favour of

barley; and this suggests an important additional question, namely, whether fermented or unfermented bread be most nutritive? and this question becomes the more momentous, since, by means of carbonate of soda, and hydrochloric acid, bread, without undergoing the chemical changes consequent on fermentation, may be rendered as porous, light, and spongy, as the most perfectly fermented bread. Even admitting, then, that solid unfermented bread is less adapted for easy digestion than spongy fermented bread, the really important inquiry still remains, whether spongy unfermented bread be or be not more nutritious than fermented bread? On this question, Dr Thomson states the results of his experiments as signally in favour of the non-fermented spongy bread:—

“The result of my experiments upon the bread produced by the action of hydrochloric acid upon carbonate of soda, has been, that in a sack of flour there was a difference in favour of the unfermented bread to the amount of 30lbs. 13 oz., or, in round numbers a sack of flour would produce 107 loaves of unfermented bread, and only 100 loaves of fermented bread of the same weight. Hence it appears, that in the sack of flour by the common process of baking, 7 loaves, or $6\frac{1}{2}$ per cent. of the flour are driven into the air and lost. An important question now arises from the consideration of the result of this experiment: Does the loss arise entirely from the decomposition of sugar, or is any other element of the flour attacked?”

We have felt obliged to deal with Dr T.'s book in a very desultory manner; for a complete analysis of its contents, however valuable, as turning so much on the feeding of cattle would have been hardly suitable for our pages. We consider it as a very able contribution to the science of dietetics, whether we look to the facts which he has ascertained, or to the suggestions which arise in the progress of his inquiries as to the line to be pursued in the future cultivation of the subject.

Urinary Deposits, their Diagnosis, Pathology, and Therapeutical Indications. By GOLDING BIRD, A.M., M.D., F.R.S., Fellow of the Royal College of Physicians. 8vo. pp. 356. London, 1846. Second edition.

DR G. BIRD'S work on urinary deposits was reviewed at length on its first appearance, in the Monthly Journal of Medical Science, as well as in the Northern Journal of Medicine; and in both periodicals a highly favourable opinion was expressed thereon. It is but two years since the first edition was published, and the call for a second edition proves that the profession, at large, have ratified the judgment of its merits, pronounced generally by the British and American journals. The work retains exactly the same form, being enlarged only by a few pages; but from the glance, though cursory, which we have taken through its pages, we think we may assure our readers that this edition is considerably improved, some of the inadvertencies which had escaped notice in the last being corrected, and the subject being, as a whole, brought up with the onward current of the day.

Part Third.

PERISCOPE.

MATERIA MEDICA.

STRYCHNIA SUCCESSFUL BY ENDERMIC APPLICATION IN A CASE OF ECLAMPSIA. By DR CHAPUIS, Surgeon of the Marine at the Port of Toulon.

The patient was a married lady, thirty years of age, seven months gone with child, attacked suddenly with violent fits of eclampsia, in consequence of severe mental distress. During the first two days she was treated by general and local bleedings, counter-irritation and antispasmodics, without any abatement of the symptoms, and on the evening of the second day, when Dr Chapuis was called in, her life was despaired of by her ordinary medical attendants. At this time "the paroxysms were long and frequent, the intermissions being but for a few minutes, and their duration from six to eight minutes; the face was of a violet hue and tumefied; the eyes, projected from the orbits, were agitated, as well as all the muscles of the face, by abrupt jerking movements; the tongue, swollen and cut in several places, issued from the mouth violently twisted, and bringing with it a copious bloody froth; the extremities, as well as the whole body, were turned and twisted with hurried convulsive agitations; the pulse was frequent, but very small; the respiration irregular; the uterus rising to the epigastric region showed no sign of contraction; its orifice was closed, and there was no indication of approaching delivery—the child was supposed to be dead, and there was a fetid exudation from the vagina." Vesication was produced in the dorsal region by means of ammonia, and over the denuded surface nearly three-quarters of a grain of strychnia was sprinkled. The effect of the strychnia was soon manifested; a more intense convulsive paroxysm arose than the preceding, but of a very different character—the clonic spasms, which had hitherto prevailed, passed now into a distinct fit of rigidity or tonic spasm; this lasted altogether about a quarter of an hour, increasing for the first four or five minutes, then gradually decreasing; "the trunk and extremities returned to their natural state, the eyes closed, some deep inspirations restored regularity of breathing and the equable course of the circulation. The pulse remaining feeble but becoming slower, she was able to swallow an antispasmodic draught, and passed the whole of the night in a perfect calm." The next day some uterine pains being manifested, the ergot of rye was administered, and the same day delivery took place; the child, most probably, had been dead for two days, and the body was covered with bruises and contusions. A month after, the patient's health was completely re-established.—Abridged from *Annales de Thérapeutique*, September 1846.

The symptoms in this case were certainly severe enough to entitle it to be referred to eclampsia, by which we understand that form of puerperal convulsions which resembles epilepsy in its severity, but not in its periodicity or tendency to return at other times than during the puerperal state. The severe laceration of the tongue, which appears to have impeded the free use of speech for some time during the patient's convalescence, is almost sufficient to distinguish this case from one of merely violent hysteria. The exciting cause, namely, mental distress produced by the suicide of a near relative, in the non-puerperal state might have given origin to an attack of hysteria of equal duration and not much less terrific in its symptoms, yet unattended with danger to

life. As we cannot doubt that the patient's life was here in urgent danger, independently of the accidents which might have followed the supervention of labour, we have before us an excellent illustration of the aggravated turn that may be given to the operation of a definite exciting cause by the excitability of the system attendant on pregnancy. Dr Chapuis hints that the venesection practised before he was called in was probably too great. Of this there are not sufficient grounds to judge; but it seems fully established by the experience of accoucheurs in unequivocal cases of eclampsia, without any special contra-indication, that blood-letting is an almost indispensable remedy. Did the strychnine then, here save the woman's life? To this question we cannot say more than that the "prima facie" evidence favours the affirmative. The effect of the remedy was speedy, it was marked, it was in accordance with the operation usually produced on the system by strychnia, and it was followed by decided relief. Did the remedy endanger the patient's life? It cannot be pronounced to have been free from hazard—a small addition to the quantity used might have hastened the patient's death. But on the supposition that the report is not exaggerated, the case was a desperate one, since the disease is undeniably of fatal tendency, and the ordinary remedies had failed to bring about any amelioration; and hence it was warrantable to encounter some risk. We agree with Dr M. in the opinion, that if his case be of no greater value, it at least suggests the propriety of making further trials of strychnine in convulsive diseases.

THE TANNATE OF IRON IN THE TREATMENT OF CHLOROSIS. By BENEDETTI.

This substance, according to our author, excels all other medicines in the treatment of chlorosis. In evidence of this he cites cases from his own, and from the practice of Majocchi, affirming that the treatment by the tannate of iron is successful in from twelve to twenty-five days, according to the severity of the case. It is to be administered in doses of from eight to thirty grains in the day. It acts more rapidly in persons of sanguine temperament. The mode of preparation, as described by M. V. Gaddi, is as follows:—A very pure sulphate of iron is made by the action of dilute sulphuric acid on iron filings; from this sulphate, by means of carbonate of soda, a carbonate of iron is precipitated, which is washed several times, and then dried on the stove. It is now pulverised and thrown by small portions at a time into a boiling solution of very pure tannic acid in a porcelain vessel—the proportions used being very nearly five parts of the carbonate to one of the acid—or 440 parts of the carbonate to 90 of the tannic acid. The fluid is to be stirred constantly till the effervescence ceases. It is afterwards exposed to a heat equal to the boiling point of water, till it acquires the consistence of thick soup. It is then withdrawn from the fire and poured on porcelain plates, and dried with the assistance of heat. The tannate of iron thus obtained is of a crimson colour, insipid, insoluble, uncrystallized, though before being dried it appears in long needles. It may be administered either suspended in syrup, or still more conveniently in the form of pills.—*Bulletino delle Scienze Mediche.*

EFFECT OF MATICO-LEAF IN A CASE OF OBSTINATE HEMORRHAGE.

The patient was a boy between four and five years old, who, in falling, had bit his tongue, the consequence of which was an oozing of blood which, when the child was brought to Mr Hamilton, had continued for two days, to the great alarm of his family, as his brother had died from hemorrhage occasioned by a slight injury of the nose, and the boy himself had before nearly bled to death from some slight wound about the mouth. Actual cautery first, and then a ligature, applied by means of a sewing needle, had each but a temporary effect, and finally the hemorrhage was stopped by persuading the child to keep sucking a piece of alum for an hour or two. It was long before the child recovered his strength.

The child was brought a second time to Mr Hamilton, having again bit his tongue three days before, during which time a continual oozing of blood had gone on, causing a perfectly blanched appearance, notwithstanding that nitrate of silver had been applied, and a piece of alum had been sucked as before. After in vain trying pressure, Mr Hamilton took a piece of matico-leaf (*piper angustifolium*) and applied the lower surface to the bleeding point, and retaining it there as long as the child would keep the tongue quiet, which was not half a minute. He then found that the blood had ceased to flow, and that the small spangle of matico-leaf adhered to the tongue. It fell off in half an hour, when there was scarcely any appearance of bleeding; a second piece was applied, and the hemorrhage completely stopped.—*From the Dublin Hospital Gazette.*

TINCTURE OF WATER-PEPPER IN AMENORRHŒA.

Dr Eberle states that he has found no remedy so effectual in the cure of Amenorrhœa as the tincture of water-pepper. Dr T. L. Ogier, in a paper in the Southern Journal of Medicine and Pharmacy, May 1846, also extols it as the most certain of our emmenagogues, and relates four cases successfully treated by it. He says that he knows of no medicine that has a more decided action on the uterus in producing the menstrual discharge. The preparation used by Dr O. was a strong tincture made from the stem, leaves and flowers; but he thinks that the active principle of the plant resides chiefly in the leaves. The dose was a teaspoonful of the tincture three times a day in a little sweetened water.—*The American Journal of the Medical Sciences.* July 1846.

The water pepper of Europe is the *Polygonum Hydropiper*—that of America, though not the same species, is closely allied to it, and probably both possess the same medicinal properties. The American water pepper is referred to the *Polygonum hydropiperoides*, or the *Polygonum punctatum*. Though the European water pepper is at present obsolete in medicine, it seems not unlikely that it might be applied with advantage to some purposes in practice. Merat says, “it is a plant to experiment on, to analyse, and which promises advantageous results in Therapeutics.” It has the reputation of being a diuretic.

THE EFFECT OF HYDRIODATE OF POTASSA IN REMOVING THE STAINS OF NITRATE OF SILVER FROM THE SKIN.

A solution of Hydriodate of Potassa is found to remove the stains made by nitrate of silver on the skin, almost immediately. It is sufficient to moisten the spots several times with a solution of the hydriodate, and then to expose the part to the diffused light of the sun, when the salt of silver is decomposed, being converted into a white ioduret of silver, and thus the black colour disappears. The instance last given of this effect is the removal of the dark stains produced on the eyelids and cheeks of a young woman in one of the Parisian Hospitals, by the use of a strong collyrium of nitrate of silver. The same effect has been noticed in this country; for example, the removal, by the same agent, of the olive colour produced on the cornea by the prolonged use of nitrate of silver. We have not yet observed any report of the trial of the internal use of the hydriodate of potassa for the purpose of removing the dark metallic hue given to the exposed parts of the surface by the internal use of nitrate of silver. If it be found to have this effect also, the fact will be of the utmost value in practice, as giving to the profession a more extended freedom in the employment of a most valuable remedy in many diseases. It is hardly to be expected that the external application of the solution of the hydriodate will produce much benefit in the latter case; but, even in this form, it deserves a trial.—See *Journal de Médecine et de Chirurgie Pratiques*, Septembre 1846.

SURGERY.

AMPUTATION AT THE ANKLE.

In our August number, Mr Syme published some observations on amputation at the ankle, suggested by remarks made in the "*Annales de Thérapeutique*," on his previous observations on that operation. In the September number of the same periodical, Mr Syme's last observations are quoted entire, with the following remarks:—"These details are sufficiently conclusive, as it appears to us to deserve the attention of surgeons. We had already dwelt on the arguments in favour of tibio-tarsal in preference to supra-malleolar amputation, when the situation of the lesion permits it to be resorted to. Already the problem appears to be in a great measure resolved, since Mr Syme has been successful in 21 out of 24 cases. The operation is well worthy of a trial, when it is considered that, besides the strong prospect of success, the after management is much more easy and economical, for, instead of an artificial leg, a simple boot, without metallic supports, enables the patient to walk. We hope to see this operation soon reinstated in the Parisian hospitals. The honour of this desirable reform will belong to M. Baudens and Mr Syme.

"At the moment of going to press we hastened to the '*Hôpital des Invalides*,' to see the subject of M. Baudens former operation. We found him in a state far from satisfactory; he wishes his leg amputated below the knee; the stump is covered with ulcerations and fistulous openings, running from carious points above the malleoli, discharging much fetid pus; its general condition is much changed for the worse. He had been sent latterly to Barèges, but he had been unable to bear the waters. M. Baudens had seen him lately, and thinks that amputation below the knee is indispensable. M. Hutin, surgeon in chief of this hospital, is of opinion that the operation cannot be delayed many days. This patient was operated on by M. Baudens in 1833 (1843?) and had the free use of his limb for more than two years. It is evident then, that the ill turn it took latterly depended on the patient's constitution (and dissolute mode of life), and that it detracts nothing from the value of the operation."—*Annales de Thérapeutique*, Septembre 1846.

MALIGNANT PUSTULE.

The patient was a young female in the service of a butcher, and the origin of the disease was a slight wound in the upper lip by the side of the left ala nasi, made with a splinter of bone projected on the part in dividing a piece of beef. Small as the wound was, there was on the following day swelling of the lip, phlyctenæ about the puncture, and then a phlegmonous aspect of the whole cheek. Leeches were applied at the angle of the jaw, nevertheless the disease went on in its course. On the eighth day she was admitted into "*La Charité*," under M. Velpeau. At that time there was great swelling of both lips, and of the whole side of the face up to the eye-lids. At the place of the puncture there was a soft yellowish plate, the size of a two-franc piece, plainly an incipient eschar; the edges of this plate were red as if erysipelatous. At the corresponding part of the inner surface of the upper lip, there is a diphtheritic degeneration, the forerunner of an eschar like that without, and this degeneration extends far along the inner surface of the cheek. There is constitutional fever as in severe erysipelas of the face. M. Velpeau characterised the affection as carbuncular, regarding it as having a certain resemblance to the gangrene of the mouth, and even of the vulva in children, at the same time that he recognised the inoculation of a morbid influence, by the splinter of bone, very probably derived from a diseased animal. Actual cautery was applied to the external plate, and to the interior of the cheek as far as it was practicable—and to the affected parts of the mouth beyond, powdered alum was applied with the finger. Two

days after the commencement of this treatment, some improvement was observable. The application of the powdered alum was continued. The internal use of acetate of ammonia was directed. The case finally did well—and the reporter remarks that he had seen a similar pustule in the lower lip of a young woman employed in the service of a butcher, prove fatal.—*Annales de Thérapeutique*, Septembre 1846.

In an editorial paragraph appended to this report in the Journal from which we have made this abridgment, it is stated that the demand in England for cattle from the Continent, has diminished the supply of good meat in the Parisian markets, and it is there anticipated, that owing to the consequent influx of inferior animals in a diseased state, malignant pustule will hereafter be more common among the butchers of that capital. We feel assured that our contemporary's apprehensions for the safety of the butchers of Paris are too far-fetched, and we are more disposed to join with him in his concluding remark, that the internal use of ammoniacal preparations, should be held an essential part of the treatment in such cases.

ON THE EMPLOYMENT OF A COLLYRIUM OF TURPENTINE IN THE TREATMENT OF DIFFERENT DISEASES OF THE EYES. By Dr S. LAUGIER, Surgeon to the Hôpital Beajon.

Dr Laugier commences by stating, that the employment of turpentine, in inflammations of the iris, is already well known, and that its virtues have been ascribed to the power, which it is said to possess, of causing absorption of false membrane in serous cavities. But it is to its external use that he at present wishes to direct attention. He says that he was led to make experiments upon it, by learning the good effects of the essence of junipers, in cases of chronic corneitis, under the care of M. Serres d'Alais.

He commenced his experiments upon some patients who had been using a collyrium of the nitrate of silver, and in whom a manifest improvement took place in a few days, under the use of the turpentine. He then tried it in some acute diseases of the conjunctiva and of the cornea, in patients who had not had any other treatment, and with the same good results. In support of his views, he relates six cases treated in this way; three of conjunctivitis, accompanied with slight tarsal affections; one of scrofulous corneitis; and two of conjunctivitis with corneitis, in all of which the remedy acted well.

His manner of preparing the collyrium is, to heat slowly in a marble mortar two parts of Venice turpentine, and, when it has become fluid, to add one part of the oil of turpentine in small quantities at a time; of this, he instils three or four drops between the eyelids, night and morning. He says that the oil of turpentine may be rubbed up with any fatty body, and used as an ointment, but he prefers using the mixture by itself.—*Archives de Médecine*, Mars 1846.

NOTICE OF A MEMOIR ENTITLED "SUR UN NOUVELLE METHODE POUR GUERIR CERTAINS ANEURISMES SANS OPERATION SANGLANTE, A L'AIDE DE LA GALVANO-PUNCTURE." By J. E. PETREQUIN, Surgeon in Chief of the Hotel-Dieu at Lyons, Professor in the School of Medicine, in the same town, &c.

In our number for August, we published a report on a case of popliteal aneurism cured by galvano-puncture, from the Milan Medical Gazette, by Ciniselli, and there referred to the practice, as advised by Petrequin of Lyons. Several cases bearing on this method of cure, both of aneurism, and also of varicose veins, have since appeared in the French and Italian journals. And we have now before us in the Gazette Médicale de Paris, a memoir of some length on the subject, by M. Petrequin, who claims the merit of having been the first to suggest this new method of treatment. We have also before us in the "Gazzetta di Milano," for 5th September, an account by Dr G. Nani in Venice, of the effect of simple acupuncture without galvanism to cause obliteration of arteries, with which we propose to present our readers.

M. Petrequin gives the following account of his discovery :—The first results of his inquiries, he says, he published on the 25th of October 1845, in his "*Melanges de Chirurgie*," and "since then I have not ceased to labour at the subject. Every thing was to produce in the plan and in the detail, as it is easy to judge ; and I have the satisfaction of seeing that experimental observation has throughout confirmed all my anticipations." He was first led to think of resorting to chemical means for the coagulation of the blood in an aneurismal tumour, by the case of a young man in whom he believed he had detected, by the stethoscope, an aneurism of the ophthalmic artery, the consequence of an injury sustained by falling on his head from a considerable height. Of these chemical means galvanism seemed the only one adapted to such a case as he had under treatment. He knew that electricity had been spoken of in connection with the treatment of aneurism. On inquiry he found that all that had been said on the subject amounted to the following brief sentence, published by MM. Marjolin and P. H. Berard, in 1833 :—"It has been suggested that the coagulation of the blood might be effected in the sac by the aid of electricity transmitted into it by needles plunged into the tumour. This idea, which we owe to M. Pravaz, has not hitherto, as far as we know, been carried into execution." M. Petrequin now applied to M. Pravaz himself, and learned from him that no trials had been made bearing on this subject, either on man or other animals. M. Petrequin's first trial, in the case of supposed aneurism of the ophthalmic artery, was not successful, and during an intermission of the treatment in M. Petrequin's absence, the young man was suddenly carried off by an attack of fever. Disappointed in this his first experiment, he was almost dissuaded from pursuing the idea further by finding that certain authorities, on reviewing the suggestion of M. Pravaz, had condemned it as totally inadequate. M. Petrequin hence concludes that the whole merit of the operation rests with himself—to which, in the mean time, we willingly give our assent. On the subject of the principles on which the success of the operation must depend, we allow M. Petrequin to speak for himself :—"The analysis of the first case led me to a knowledge of the principal difficulties, and of the resources by which they were to be overcome. Thus, in the first place, it became necessary to abate the force of the circulation in the afferent vessels, without which the clot is liable to be carried away by the current of the blood, as fast as it forms, particularly if the arterial tube be beyond a certain magnitude. In the sac the blood should be, as far as possible, stagnant and motionless ; the patient should be recumbent or seated at perfect rest in an easy-chair.

"To coagulate the blood in an aneurism, it is requisite, not only that the galvanic current should reach the surface of the tumour, and that it should be conveyed to a spot within it, but it is also indispensable that it should be directly transmitted through the blood itself by two opposing points. For this effect I employ steel needles, from seven to eight centimetres long (about three inches), fine and sharp, which may penetrate easily into the sac through the soft parts. There is here a double difficulty to be overcome ; in reaching the seat of the disease they burn and cauterize the skin, irritate the nerves, and cause unavailing suffering, ecchymosis, and unfavourable inflammatory action. Again, they cause trouble by the loss of electricity, which may result in a failure of the operation. It occurred to me, therefore, to isolate the needles in an extent corresponding to the thickness of the soft parts to be traversed, taking care to leave the heads and points free. I succeeded in this object by means of a coating of gum-lac, and better still with cutlers' varnish. It is easy to show that the isolation is thus rendered complete ; for the energetic action which takes place when the poles of the galvanic apparatus are applied to the head, or to any free part of the needles, immediately ceases, whenever the poles are connected with any part of the needles covered with the isolating coating, and recommences as soon as the wires and needles communicate without its intervention, a convincing proof that the method is good. We may also use

an enamel, or a china or stoneware glazing. "Next of the mode of placing the needles. In my experiments on the blood, the occurrence of coagulation was found to be most ready when the extremities of the needles were crossed; this, therefore, is the arrangement to be adopted; and when the aneurismal sac is of considerable size, we should multiply the points of coagulation, so that the nuclei formed at different points, may finally pass into one common clot.

"Thus I obtain the rule from experience, that we should insert the needles at opposite points for their better correspondence; that we should give them a direction obliquely or perpendicularly opposed to the current of the blood to interrupt it; that we should cross them, to render their effect more energetic, and increase their number in larger aneurisms, to obtain at once a good number of clots, to afford as it were a frame-work for the general coagulum; lastly, that it is advantageous to change several times the direction of the currents, in order that the galvanic influence may act in every direction, and thus produce a multitude of filaments stretched out to form the basis of a thread of coagulum amidst the mass of the contained blood." Pp. 737, 38.

The first case in which M. Petrequin succeeded, was an aneurism of the temporal artery, the effect of an injury sustained by a fall from a height. The application of the galvanic current, according to the rules above stated, was kept up for ten or twelve minutes, and at the end of that time the pulsating tumour had become changed to a solid mass: moistened compresses were applied and retained with some turns of a bandage, and the hard knot quickly disappeared.

His second case was an aneurism at the bend of the arm, the effect of venesection. In this case, some amount of coagulation was produced, but owing to the cowardice and unmanageableness of the patient, the attempt was finally abandoned.

In studying the phenomena of coagulation by a galvanic current, M. Petrequin recommends milk to be employed rather than blood, as affording greater facilities for the exact observation of the circumstances which favour or retard the effect; and the result of his observations, on the best kind of galvanic apparatus for the purpose, is, that a columnar pile, composed of separate small pieces, the number of which can be augmented at pleasure, with bits of cloth interposed moistened with solution of muriate of ammonia, answers best. The importance of attention to all the particulars that can be collected from the cases in which success has been obtained, will be obvious to all those who have in any degree engaged in galvanic experiments.

M. Petrequin next refers to the brilliant success obtained by Ciniselli of Cremona, in a popliteal aneurism, by following the rules laid down by him. This is the case which appeared in our August number.

Our author's next case is also an aneurism of the bend of the arm, following venesection; the chief particulars of which are as follow:—

"The patient was an assistant in pharmacy, aged 30, affected with hypertrophy of the heart, whose brachial artery was wounded in venesection, whence a primitive false aneurism resulted. Some months afterwards he applied to M. Petrequin. The aneurismal tumour was then larger than a hen's egg. It was the seat of active pulsations synchronous with the stroke of the heart. By compression of the humeral artery the size of the tumour was diminished, and the pulsations became less evident. M. Petrequin, in the first place, adopted some treatment directed to the mitigation of the symptoms resulting from the disease of the heart.

In three weeks the galvano-puncture was resorted to: four needles about three inches long were inserted at four opposite points of the tumour, so that their extremities crossed within. The galvanic apparatus used was a pile composed of sixty plates about three inches square, the interposed pieces of cloth being moistened with a solution of sal-ammoniac. The brachial artery was compressed, so that the pulsations in the tumour ceased. Two of the needles were then brought into communication with the poles of the apparatus

by means of brass wires wrapt round with silk at the points where they were handled. The galvanic current was very intense, and gave brilliant sparks at intervals. The shocks were violent, the patient being held by the assistants. The tumour at first diminished in size ; then it seemed to become tense and red, without any increase of density. The patient complained of a burning heat at the points where the needles were inserted, and around each there was a slight cauterization. In ten minutes the density of the tumour began to increase ; there were evidently nuclei of coagulation already formed. The current was still kept up alternated through each pair of needles. In fifteen minutes the tumour felt hard, and no pulsation was discoverable even when the artery ceased to be compressed. For five minutes more the current was kept up, and then the needles being removed, compression was applied to the artery, and a bladder filled with ice placed on the tumour. For the first few days the tumour progressively diminished, without any unpleasant occurrence—then inflammation of the aneurismal sac arose, accompanied with dull pains. The punctures made by the needles showed black sphacelated points, rendering a fetid pus, and small blackish masses, the debris of the coagulated blood in a semi-organized state. Thus, the sac became inflamed and suppurated, emptying itself by the apertures made by the needles. The suppuration lasted a few days, and the exit of the pus was favoured by a slight compression. Twelve days after the galvano-puncture, it was ascertained that the tumour had completely disappeared—that there was no longer any trace of the aneurism—and that the circulation in the radial and ulnar arteries was restored. On examination, it was discovered that the brachial artery was very superficial, and that a second brachial artery ran deeper and posterior to that which was wounded.

Our author ascribes the inflammatory symptoms which arose in this case, to the want of an isolating coating on the needles at the time of the operation.

M. Petrequin's next case is one of popliteal aneurism, in which the cure was effected without any unpleasant accompaniment. The needles were applied exactly as in the last case, with the exception that they were covered with an isolating coating in the middle part. The galvanic current was kept up for sixteen minutes, at the end of which time the tumour had become hard ; the pulsation had ceased, and no arterial sound could be heard ; the skin was neither red nor tense, except that there was a slight rose-coloured areola, of small extent, around the needles. The patient made no complaint during the operation. The tumour progressively declined in size, though, at the time of his dismissal, nearly a month after the operation, it was still of the size of a small egg ; before the operation, it was the size of the fist.

The next case is also one of popliteal aneurism, which M. Petrequin cites from the Milan Medical Gazette, as treated by Favale of Naples. The case was complete ; the skin, however, inflamed and suppurated ; it is not stated whether or not the middle part of the needles had received the isolating coating.

The last case contained in M. Petrequin's memoir, is one of aneurism at the bend of the arm, the effect of venesection. In this case the plan of proceeding was the same, and the success complete. The report extends only to the ninth day after the operation ; but up to that time nothing untoward had occurred.

M. Petrequin suggests the employment of the galvano-puncture in some other diseases besides aneurism ; for example, in varix, erectile tumours, sanguineous tumours, &c. As a sequel to our author's memoir, we present our readers with an account of the effect of galvano-puncture on varicose veins by Milani ; and the paper referred to above, on the power of simple acupuncture in the obliteration of arteries. It appears there was an earlier paper on the effect of galvano-puncture in varix, by J. Bertoni ; but the July number of the *Gazzetta di Milano*, which contains it, by some accident has not reached us.

CLOSURE OF SEVERAL VARICES OF THE LEFT LEG, BY MEANS OF THE ELECTRO-PUNCTURE. By Dr MILANI, of Varese.

The patient was an organ-builder, fifty years of age, of a healthy and robust constitution, who went into the hospital at Varese, on the 2d of August 1846, to be cured of a varix, which caused him so much pain as to prevent him from following his occupation. It had existed for four years. The whole of the internal saphena was considerably dilated, and presented ten different knots, some as large as a small nut, others about the size of a bean, while some smaller ones extended from the internal malleolus, to two fingers' breadth below the knee. The trunk of the saphena continued enlarged to about the inferior third of the thigh. A considerable knot could besides be distinguished at the external and upper part of the calf. Animated by the favourable result which he had seen to follow the application of electricity by M. Ciniselli, to a large popliteal aneurism, Dr Milani determined to try it in this case. Having prepared a voltaic pile of twenty-six discs, of about two inches in diameter, he introduced two needles into the tumour situated at the inner and middle part of the calf, and having previously applied two ligatures firmly around the leg, above and below the tumour, united the needles with the two poles of the battery, by means of a copper-wire silvered over. The sitting lasted twelve minutes. The patient experienced, at the first, a considerable shock, which became afterwards gradually less, with a continued sensation of pricking and burning. The tumour withered, became small, and however much the saphena, and its branches, were compressed above it, it could not be made to increase more in size. In its interior there could be felt with the finger a degree of hardness, especially around the needle communicating with the zinc pole. Vinegar and water was afterwards ordered as a lotion to the whole of the leg. On the fourth, the electricity was applied to the trunk of the saphena, two inches above the knee, but the number of the piles having been increased to thirty-one, and the patient, not being able to support the shock, five were removed. In the third application, made about the middle of the leg, the wires were passed through the eyes of the needles. There were twenty-four pairs of plates, and they were allowed to act for fifteen minutes, in which time there were formed clots which extended two or three inches upwards, along the saphena, in the form of firm cylinders, and of unequal hardness. The fourth application was made to a varix higher up than the former. In four minutes hardness could be felt in the tumour, chiefly around the zinc needle. In nine minutes, the clot extended a finger's breadth towards the lower part. The sixth, seventh, eighth, and ninth applications lasted fifteen minutes, and gave the same results. In the last application, the needles were fixed in two neighbouring tumours. In eight minutes, clots were formed around the zinc pole, but the blood remained fluid around the copper pole. It was then determined to change the needles, introducing the first in the place of the second, and *vice versa*. In seven minutes, the other tumour, of the size of a filbert, was also closed up. At all the other times, it was only the zinc needle which offered any resistance in withdrawing it, but this time also the copper one was the same. By these means, the whole of the varices had disappeared in ten days.

Although the two points of the needles never touched each other, and sometimes were placed at a distance of an inch from one another, there never could be prevented from taking place a superficial cauterization of the skin, in the form of an areola around the two needles, always larger around the zinc one. Not even a plaster of wax, having only a small hole for the penetrating point, could prevent this occurrence. The treatment was supposed to be assisted by fomentations along the whole of the leg.

A varix of the size of a goose-egg, on the internal malleolus of the left leg of another patient, was filled with clot after two applications, and diminished to two-thirds of its size.—*Gazzetta Medica di Milano*, 29 Agosto 1846.

ON THE EFFICACY OF ACUPUNCTURE IN CAUSING OBLITERATION OF THE ARTERIES. By
Dr GIACINTO NAMIAS of Venice.

Dr Namias, wishing to try if the application of needles alone was sufficient to produce a coagulum, without the aid of an electric current, the primary carotid of an old horse was transfixed with a long needle, such as is generally used in acupuncture, and which was left in its situation for twenty-four hours. The artery was not laid bare, but was transfixed in the spot where the pulsations were most distinctly felt. The animal was killed five or six days afterward, by means of several ounces of cherry-laurel water being injected below the skin. It was found that the needle had passed from side to side of the carotid, and that in this situation there was attached to the artery a fibrinous coagulum of more than two inches in length, and free from any other point of union to its cavity. This coagulum, resembling a polypus, filled the interior of the carotid, which would have been changed into a solid cord if the animal had lived longer.

The needle which traversed the interior of the artery, Dr Namias thinks, must have caused a slow motion of the blood at that part, and collected around it a deposit of its fibrine. This fibrine becoming firmer, increased, as may be supposed, the cause which induced the separation of this substance from the blood, by means of which the coagulum obtained such a size as to fill for a space the cavity of the artery. Its union with the vessel commenced where the points of the wounded membrane were necessarily the seat of inflammation, and of some effusion of plastic lymph. Dr Namias states that other experimenters had proposed the same plan, but with what result he is not aware.

That which he undertook in a large vessel, such as the carotid of a horse, appears to him to be of such a conclusive and well merited value, as to warrant a regular series of experiments being made of a like nature. For, if the introduction of needles alone be sufficient to cause the obliteration of an artery without the aid of the electric current, the cure of aneurisms would be attended with less trouble and danger than with the electro-puncture.—*Gazzetta Medica di Milano*, Settembre 5, 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

ON THE FORMS AND TREATMENT OF SCORBUTUS. By NOVELLIS.

In this memoir, Novellis traces out the whole history of Scorbutus, while it contains a great number of observations and reflections on the cause and the characters of that disease. According to him, there is but one Scorbutus, and the distinction between land scurvy and sea scurvy has no foundation. It appears, however, under two forms; the one chronic or apyretic, the other accompanied by fever. To this latter form the author proposes to apply the name Scorbutic Synocha. It is, in short, nothing else but an inflammatory fever, complicated with symptoms of Scorbutus; though most commonly simple, it may give rise to gangrene of the gums and lips. Its complete inflammatory nature is principally proved by its treatment; for the means which succeed best are general blood-lettings, leeches to the gums, acid drinks, slight purgatives, ice kept in the mouth, &c.

Scorbutus is not contagious, either directly or intermediately. The prophylactic treatment does not consist in administering this or that drug, but in the better regulation of the hygiene of the persons exposed to the influences which excite it. All vegetables that can be eaten raw, provided they are of easy digestion, are proper in this malady; thus, lettuce and chicory in the raw state, and spinage, chervil, and sorrel, cooked, are used with benefit. As to acrid vegetables, such as celery, garlic, leeks, &c., it is known that the immoderate use of these has sometimes sufficed of itself to produce scurvy.

The nitrate of potass is preferable to all other remedial agents which come under the name of specifics, or, in particular, to preparations of iron. The best external application is a solution of common salt. It results, in short, from the author's experience, that salt, so far from being injurious in scurvy, as was once believed, is of the greatest use in the treatment of the disease.—*Annali Universali di Medicina* and *Gazette Médicale de Paris*. 10 October 1846.

As our author sets down garlic and leeks among the articles of diet to be proscribed in the scorbutic tendency, we must infer that onions lie under the same prohibition. The truth of this statement is of considerable importance, as we find onions to be a very favourite vegetable in the navy, particularly after long voyages, when the ships touch at ports where they can be procured. We believe the rule under which contracts for victualling ships of war are made, is that onions count as equivalent to twice their weight of vegetables in general, and it does not appear to be uncommon on foreign stations to take the whole supply of vegetables for the ship in onions. If vegetables of this kind be as hurtful as our author affirms, it would be well that the attention of the medical officers of the navy were drawn to this subject—as it cannot be denied that though scurvy is no longer the formidable disease it once was in sea-going ships, the tendency to it is often manifested, and that its less observable forms often complicate other diseases, rendering them intractable under the treatment which would otherwise be successful.

ON ACUTE SPINAL MYELITIS. By M. ROSTAN.

Several cases of acute myelitis treated in M. Rostan's wards, have given this professor an opportunity of sketching the features of this affection, hitherto so obscure, and of methodising its principal therapeutic indications. A few only of the prominent points can be here noticed, those on which M. Rostan particularly insists, and which he believes sufficient for establishing the diagnosis. Of these, the summary is as follows: on the one hand, complete retention of the senses and intellectual functions; on the other, various derangements in the sensibility and power of motion in the extremities, and especially the lower extremities. But these derangements in the power of motion and the sensibility, are very variable according to the degrees and different periods of the disease, and it is owing to having, for the most part, failed to take account of all the degrees and shades of these symptoms that this affection has been so often misunderstood at its commencement, that is, at the period when energetic treatment may avail to prevent its disastrous consequences. These first symptoms, by which myelitis is announced, are sometimes cramps, more or less frequent, and muscular contractions of longer or shorter duration; at other times pains in the extremities are the only symptoms complained of without any appearance of change in the contractility; in other cases muscular tremors, true convulsive movements, come on; lastly, in some the loss of sense and motion appear at once from the commencement. Whatever may have been the initiatory symptoms, it is always by the more or less complete abolition of sensibility and motion that the scene terminates. There is another symptom, to which M. Rostan attaches much importance, namely, the abolition of the erectile power in the male—the functions of the rectum and bladder, though often more or less affected, sometimes remain unaltered, so as to fail of affording diagnostic signs. And to pain on pressure over the spine as a diagnostic, M. Rostan attaches very little importance.

The antiphlogistic method forms the basis of this physician's treatment,—he has recourse to general and local evacuations of blood. But as detraction of blood is not always practicable in the requisite degree, or when practicable is insufficient, M. Rostan uses as subsidiary, blisters, setons, moxas, and purgatives; lastly, in the final resort, and after the insufficiency of the means already enumerated is manifest, he has recourse to strychnine, electricity, and the various excitants of the nervous system.

The following are among the cases recently treated by M. Rostan:—

I. ACUTE MYELITIS—ENERGETIC ANTIPHLOGISTIC TREATMENT—AMELIORATION—
SUDDEN ATTACK OF MENINGO-ENCEPHALITIS—DEATH.

A young man of a vigorous constitution, after having been exposed to wet, became affected with extreme weakness in the lower extremities. As this weakness went on increasing he came to the Hotel Dieu, when the following symptoms were observed:—fever, pulse 96, skin hot and dry. The intelligence is quite sound; no headache. The upper extremities are in a slight degree weakened. The lower extremities have lost entirely their sensibility, and the power of motion in them is quite gone. The bladder and rectum are unaffected. Pressure made with the fingers over the spinous processes of the vertebræ excites no uneasiness.

M. Rostan pronounced him to labour under acute myelitis, and prescribed an energetic antiphlogistic treatment; blood-lettings from the arm and cuppings over the spine were repeated for several days. On the third day of this treatment, the patient experienced an amelioration so great that he was already considered in a state of convalescence; the sensibility and power of motion were so fully recovered that he could walk and move about without support, when after exposing himself anew to cold, he was seized with otitis, accompanied with a purulent discharge from the ear, swelling in the region of the parotid, erythema of the neck and breast, then in succession with symptoms of meningo-encephalitis of the most intense description, which cut him off in two days.

On dissection, the spinal marrow was found slightly softened towards its lower part to the extent of between one and two inches (3 to 4 centimetres), and healthy everywhere besides. In the head were seen the anatomical characters of commencing meningo-encephalitis; vivid injection of the pia mater and arachnoid adhering at some points to the cerebral pulp; convulsions turgid and prominent; punctuated injection of the cerebral pulp, &c.

II. ACUTE MYELITIS—ANTIPHLOGISTIC TREATMENT—RAPID CURE.

A man of fifty years of age, robust, usually enjoying good health, was seized after a cold bath with a general prostration, a sense of lassitude and weakness in the loins and extremities. This weakness augmenting, there soon arose a tingling in the feet, then an almost complete abolition of sensibility in the movements of the lower extremities; the upper extremities also were somewhat affected. Unequivocal entireness of intelligence and the senses; no headache; febrile excitement. The rectum and bladder were unaffected. No pain on pressure over the vertebral column. M. Rostan directed four bleedings from the arm within two days, and cuppings along the spine. There was an evident amelioration almost from the first bleeding. At the end of eight or ten days the cure was complete.—*Gazette Médicale de Paris*, 3 Octobre 1846.

TUBULAR SWELLING—SIPHONOMA, A NEW FORM OF PATHOLOGICAL TUMOUR. By
Professor HENLE of Heidelberg.

In a tumour which Professor Vogt of Zurich forwarded to Professor Henle to be examined, he discovered a structure different from what he had ever seen in any other species of morbid growth, and which, therefore, he is inclined to suppose, is exceedingly rare, and deserving of notice. It was found in the body of a young man, who, on account of a swelling of the abdomen, remained some time in the hospital. He suffered from various attacks of peritonitis, and died after softening and a considerable extension of the tumour. This was strongly attached to the mesentery, and exhibited in various places different appearances. In one place it was white, hard, fibrous, and nodule, in another soft and cheesy, or even purulent, and in a third fibrous, but soft and of a dark red, resembling coagulated blood.

The soft, solid, and hardened portions of the tumour were composed of ele-

ments very generally found in morbid growths. The fibrous, dark red mass, seemed at first to consist of coagulated blood, which had been extravasated during the latter period of the disease. Some days after it had lain in weak spirit of wine, however, the regularity of its fibrous structure became very striking. The filaments and bundles of filaments, in some places, forming a net work, lay perfectly parallel to each other, as in muscular substance, and were as easily separated from each other as the fibres of muscle. These filaments, under a high magnifying power, resembled pipes or tubes. They were filled with fine granular matter, composed of large and smaller, clear, and dark molecular globules, drops of fat, and conglomerate of minute granules. By transmitted light the tubes were of a yellowish, and, when heaped together, of a dark brown colour. By means of pressure the contents could be forced out, and the then flaccid tube appeared folded and of watery clearness. Finer tubes were smooth, and bounded by single lines. The larger tubes had here and there short and narrow bodies, sharp at both ends, the longest diameter of which lay in the long axis of the tubes. They generally possessed lengthened striæ in their lateral walls, from which it may be presumed that the coats of the tube were formed of concentric layers, or of longitudinal fibres. They usually occupied about a tenth, although there were others which measured more than a third of the diameter of the tube. In strong tubes, it was not unfrequently observed, after emptying the contents, that a cylinder appeared in their axis, which had similar longitudinal striæ in the lateral walls, being granular and of firm consistence. All attempts to isolate these did not succeed.

The diameter of the tubes is very uneven, and varies from 0·0027 to the 0·030 of an inch. This variation is greater in tubes which are transversely elliptic. The largest tube seen had 0·087 in the longest, and 0·050 of an inch in its shortest diameter. The thickness of the wall was 0·005 of an inch. A transverse section exhibited the wall of the tube to possess concentric striæ, the centre clear, or finely punctuated.

In general, a tube, so far as it could be followed, was of the same diameter. Fork-like divisions and anastomoses were very rarely found. On the other hand, near the tubes, and mostly in connexion with the walls, were fine fibres and fibrous bundles, resembling those in coagulated fibrine.

Each tube and its contents became somewhat paler in acetic acid, without otherwise being changed or dissolved. Little importance, however, could be attached to this reaction, as the same is produced in otherwise soluble filaments and cells, when they have remained some time in spirit of wine.

Between the tubes, and attached to them externally with more or less firmness, were thick and irregular masses of granules. A transverse section exhibited the tubes in some places lying close together, and more or less flattened; in others, with intervening spaces occupied by these granules. When isolated, they were found to be partly round, partly irregularly angular, with a dark nucleus. When separated, they were of a yellowish, when in mass, of a yellowish red, colour. By direct light, they appeared of somewhat fatty lustre. The great majority had a diameter varying from 0·004 to 0·005 of an inch, some were 0·007; many were smaller, and not to be separated from the granules within the tubes. Some globules were occasionally seen with double lines, resembling those in the spinal cord, and sometimes plates of cholesterine.

The tubes described are separable from those of nerves by the action of alcohol, which leaves the walls finer and more transparent, and the contents coarsely granular, and in mass, white. Further, true nervous tubes never possess the diameter of even the medium size cylinders seen in the tumour. They certainly present some resemblance to capillary blood vessels; but from these they are also distinguished by the unfrequency of any branches and anastomoses, the simple structure of their walls, and the peculiarity of their contents. They can only be supposed to resemble muscular filaments by very superficial observation.

The Museum in Heidelberg possesses both preparations described in Leo Wolf's dissertation (*Tractatus Anatomico-Pathologicus sistens Duas Observationes Rarissimas de Formatione Fibrarum Muscularium, &c., Heidelb. et Leip. 1832*), as examples of newly formed muscular fibres in the pericardium and pleura. Most competent persons are of opinion that this so-called muscular tissue of Wolf is only exuded fibrine. But as exuded fibrine seldom presents such parallel fibres and bundles, it was not improbable that the author had seen a structure similar to the tubular kind of tumour now described. A microscopic examination, however, immediately falsified this supposition. Nothing could be seen in the pleura and pericardium but the fibrous tissue so commonly found in chronic exudation. The masses of fat, however, which in some places entirely composed the walls of the heart, exhibited, under the microscope, a considerable quantity of muscular fasciculi, with regular transverse striæ.

Professor Henle closes his memoir, by suggesting the possibility, that other hemorrhagic exudations, producing tumours of the serous membranes, may, on a more careful examination, be found to consist of the tubular structure he has described.—*Zeitschrift für Rationelle Medicin.* 3 Band, 1 Heft.

DR SCHLOSSBERGER OF TUBINGEN ON THE SARCIINA VENTRICULI OF GOODSIR.

Dr Schlossberger informs us that he published an account of the discovery of Goodsir, and the observations of Busk and Wilson, in the *Archives für Physiologische Heilkunde*, Jahrgang 4, Heft. 2. During the present summer (1846), Dr Virchow, Prosector at the Charité Hospital of Berlin, informed him, that in the course of his numerous dissections, he had frequently had occasion to see the sarcina in the contents of the stomach after death. On one occasion, he found a large number of them in a pulmonary abscess, which had no connexion whatever with the stomach. Dr Schlossberger himself examined the pus from this abscess microscopically, and convinced himself of the identity of the therein four-cornered square plates, with the sarcina of Goodsir. No insight, however, was obtained into the nature of this structure. In the meantime Dr S. became acquainted with the late observations of Müller on the muscular tissue, and with the existence of a transverse and longitudinal division of the animal muscular filaments, which Tod and Bowman had previously described (*Physiological Anatomy and Physiology of Man*, Vol. I, p. 152). According to Müller and Donders, the transverse striæ of the primitive muscular filament consist of small globules, of two sizes, resembling strings of pearls, regularly alternating with each other. As the globules of the one resist different kinds of solvents much less than those of the other, each division is thus, according to Müller, very simply explained. This description induced Dr Schlossberger to imagine that the sarcina might consist of broken down pieces of the muscular filaments. He has not yet succeeded in producing artificially from muscle, the identical appearance presented by the sarcina; but after long maceration in caustic potash, the filamentous disaggregation presents a great analogy to it. He considers that the maceration of striated muscular filaments in the gastric juice, especially under the circumstances presented in the stomach, is more likely to succeed, and announces his intention of making the necessary experiments. Dr von Gorup-Besams has lately described (in *Donne's Microscopic Erlangen*, 1846, p. 356), in several yellow fluids, passed by stool, very regular, elongated formations, which he conceives to be fragments of muscle. These, also, probably have some connexion with the so called sarcina, and they must occasionally be found in the excrements in cases of indigestion, &c., if the previous explanation of the formation of that structure be correct.—*Medicinisches Correspond. Blatt des Württemberg. Ärztlichen Vereins.* August 1846.

Since reading the above, we have had occasion, more than once, to confirm the observation of Dr Virchow of Berlin, with regard to the existence of these peculiar structures in the stomach after death. Hitherto, however, we have been unable to trace any connexion between them and decomposed muscular tissue. The opinion of Dr Schlossberger also seems opposed to the stated fact

of their occurrence in a pulmonary abscess, as no striated muscular fasciculi can reasonably be supposed to produce them in the lungs.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

PRACTICAL REMARKS ON THROMBUS OF THE VULVA. By M. VELPEAU.

After having given a *resumé* of the characteristics of this affection, the frequency of which cannot be contested, the author proceeds to refute the opinion of those who regard the puerperal state as necessary to the development of the disease. He considers it as clearly demonstrated that women are subject to this disease at all periods and in all conditions of life. We need only consider for a moment the nature of the complaint, and we shall then understand that parturition can be regarded merely as one of the causes, not as the sole cause of the tumour. Thrombus of the vulva results simply from a rupture of vessels, sometimes with, but most commonly without, an external opening. A sanguineous tumour of this nature may form in the vulva as well as in any other part of the body from mechanical violence. It may ensue from a blow on the corner of a chair, edge of a bath, or in any similar way; a very frequent cause, though generally concealed, is excess in venery. M. V. has met with many instances of this disease in prostitutes and girls who had abandoned themselves to venereal excesses. When once formed, thrombus of the labia passes through the same stages as other sanguineous tumours; the blood effused may disappear insensibly and the disease terminate by resolution; or only the fluid part of the effusion may be absorbed and a clot remain, forming a solid tumour. At other times the solid part disappears, and there remains a cyst, containing a pultaceous matter, an unctuous semi-transparent substance, or merely serum; or, again, the tumour may inflame and become an abscess, which, when opened, exhales an odour resembling that from an opening in an intestine. This M. V. explains by the vicinity of the abscess to the rectum.

Treatment.—If there be no opening in the integuments, discutients should be employed to bring about resolution of the tumour, such as compresses dipped in a solution of acetate of lead, or of sal-ammoniac; if these are not successful in the course of fourteen days, other treatment will be required. What prevents the dissolution of the tumour is the formation of a cyst round the effusion; this may either be broken up by means of the introduction of a lancet, and the fluid permitted to escape into the neighbouring tissues, or the cyst may be ruptured by pressure, and its contents forced into the surrounding cellular tissue; this latter practice is difficult, and not applicable where the skin is painful, and, indeed, neither of these modes can be considered as generally advisable.

Caustics are only to be employed if the patient is not near her confinement, and refuses to permit an incision.

Incision is, according to M. Velpeau, the only means of curing those tumours which resist discutient treatment, and the removal of which must be accelerated, in consequence either of the inconveniences to which they give rise or other circumstances with which they are complicated. There is no risk of serious hemorrhage. M. Velpeau has opened upwards of twenty of these tumours, and never saw any bleeding of consequence; if hemorrhage did result, it could be easily arrested. An incision will not renew the bleeding from the vessels originally ruptured unless some large artery were wounded, and then only if the disease be of very recent date. A large incision is to be preferred to a small one, as it does not cause any greater liability to inflammation, and permits of the cyst being more completely cleared. After making the incision, M. Velpeau clears the cyst of its clots, washes it clean, then stuffs it with charpie, and over this he lays a poultice, if there be tenderness or inflam-

mation, but if not he applies a compress of charpie, smeared with cerate, and afterwards lint dipped in a saturnine lotion. He recommends the incision to be made on the external surface of the labium, unless the tumour point at some other place. M. V. remarks that a thrombus may oppose an obstacle to the expulsion of the child, and further, that in some recently delivered females it causes excessive torture, and in either of these cases immediate incision should be made.—*Journal de Méd. et de Chirurg.* Mai 1846, p. 215.

FISSURE OF THE ANUS IN INFANTS AT THE BREAST. By MM. MOREAU and DUCLOS.

Fissure of the anus is generally supposed to be an affection peculiar to adults. Most authors affirm, that they have never met with the disease at an early age, and M. Velpeau expresses his surprise in observing it in individuals of the ages of 18 to 20. A girl, one year old, still at the breast, came under the care of M. Trousseau, at the Hospital Neckar. From birth, the child had been subject to constipation, which during the last four months, had become more obstinate. The child passed stools only every third or fourth day, and on each occasion suffered severe pain; the pain commencing a few moments before the effort at defæcation, and continuing for some time after the accomplishment of that function; and ultimately some drops of blood were passed, sometimes before, sometimes after, the expulsion of the fæces. Occasionally it exerted an effort, and retained its stools.

On examining the anus, the ring was found entire; but, on separating the mucous membrane deeply, a fissure was found, about 1-25th of an inch in breadth, and 1-5th of an inch in length. The only treatment employed was the daily administration of an enema, consisting of fifteen grains of the extract of ratanhia root in three and a half ounces of water. After the first injection, the pain gradually diminished, and the child ultimately recovered.

M. Duclos' case is similar to the preceding, and the means adopted nearly the same, the only difference being the internal administration of magnesia. M. D. points out the distinctions between the disease in adults and in children. In the former the pain reaches its maximum during the first few hours which follow the expulsion of the fæces, but the child is free from pain as soon as it has accomplished that function. Again, in adults, we frequently see very extensive fissures, without the loss of a drop of blood; but, in both of the above cases this symptom was observed.—*Journal de Méd. et de Chirurg.*, Mai 1846, p. 211.

ON THE SUPPOSED INFLUENCE OF QUININE IN PRODUCING ABORTION. By M. RODRIGUES.

M. R. has published his observations on this subject, in reply to a statement which appeared in the *Annales de Thérapeutique*. He has treated fifteen cases of intermittent fever in pregnant women with sulphate of quinine, and all of them were cured without any bad result. He lately treated a pregnant woman for rheumatism with quinine in large doses; her disease disappeared, and no abortion took place. He appeals also to the extensive experience of Professor Delmas, who says that he has invariably treated pregnant females labouring under marsh fever just in the same way as he treated other patients labouring under the same disease, and never saw abortion occur in any of them. M. Mojon has been able, by means of this remedy, to arrest abortion in persons not labouring under fever. M. R. believes that it is the disease for which the quinine is given, and not the drug itself, that causes abortion, and that miscarriage is much more likely to result from permitting intermittent fever to run its course unrestrained than from treating it with sulphate of quinine.—*Journal de Méd. et de Chirurg.*, March 1846, p. 114.

FORENSIC MEDICINE AND MEDICAL POLICE.

CHARGE OF CHILD MURDER AGAINST HELEN AND JEAN FRITH—ALLEGED CLOSURE OF THE DUCTUS ARTERIOSUS AT BIRTH—ACQUITTAL, WITH REMARKS.

THIS trial, which took place before the Circuit Court of Justiciary at Ayr, 13th October, is so remarkable in some of its features, that we are sure the following account, with the extracts from the evidence, will be acceptable to our readers. The judges were the Lord Justice-Clerk, and Lord Wood. Mr G. Deas, A.D., conducted the prosecution, and Mr A. S. Logan, and Mr John Millar, appeared for the defence.

Helen Frith, an unmarried woman, was apprehended about the 1st of July, on suspicion of having, a few days before, given birth to an infant, which she had destroyed; and a short time after, her mother, Jean Frith, was committed on the charge of being an accessory or a principal in the same crime. The first point in the case was to establish the fact, that Helen Frith had borne a child about the period referred to, she herself, as well as her mother, denying that she had been pregnant within a year, and ascribing her enlarged size to an inward swelling, which had burst and discharged its contents on the night when she was suspected of having given birth to a child. In opposition to this statement, there was the evidence of a weaver whom Helen Frith had told, before the beginning of December, or seven months previously, that she was with child by him, though she soon after the New Year, told him that she had lost the child. By the evidence of several neighbours, it was proved that her appearance in the spring, and beginning of summer, led them to suspect pregnancy. In May, she called on Mr William Craig, surgeon, Ayr, asking him for something to cure her complaint, when he satisfied himself by a particular examination, that she was far gone in pregnancy, and warned her against concealing it. A hawker who lodged in her mother's house, and who had some intention of marrying her, began to suspect that she was pregnant, and on putting the question to her several times, received as often a denial. He slept in the same room with Helen Frith and her mother, and in the night of her supposed delivery, he awoke and saw the younger prisoner walking up and down the room apparently in great pain; after this he fell asleep, and awoke again in less than three hours, when he heard half-suppressed moans. He goes on to say—“After her mother got up, she went across the room to a press opposite their bed, took a key from the shelf, and opened with it the closet door. She went into the closet, and remained there some time. When the elder prisoner was in the closet, Helen's moans increased, and at length she cried, ‘Mother, mother, come here.’ Her mother came and remained two or three minutes, when I heard her say, ‘My God, what am I to do with this?’ Two or three minutes after the mother went to a wall press opposite my bed, and took down a white bason, with which she went back to Helen's bed, remaining there a minute or two, after which she went into the closet. As she was going, I heard something like the cry of a child. I could not determine whether or not it was the cry of a child; but I was rather inclined to think it was. It was a weak and stifled cry. It had no resemblance to the cry of a grown child; but something of the nature of an infant's cry. The elder prisoner remained five or ten minutes in the closet, when she went in the second time. I don't know whether she shut the door when she came out. Helen moaned or mourned after her mother went out; but grew gradually calm, though in what time I could not say. I got up betwixt nine and ten. Helen was then in bed. I don't recollect whether I asked her anything—but she looked very much exhausted. * * * On the Sunday I drew near to Helen's bedside, and asked her how she was—she said, better. I asked her how the swelling was—she said, ‘better, and so it may.’ I added, ‘Yes, and so it may.’ She was apprehended on the following Thursday. On that night the elder prisoner said to me, ‘I was sure

no child had been born in the house ;' to which I answered, she was not aware of what I could say on the subject. I was not inclined to say much at present. The subject was renewed next day, when she repeated that I knew nothing. Upon this I deemed it my duty to tell her all I knew ; which I did accordingly. On hearing my statement she said, lifting up her hands—' My God, if you tell that, it will run hard with Helen Frith.' She neither denied nor confessed. She said, however, that Helen might have had a child ; but, if so, she (the mother) knew not of it."

Drs Crawford and Mitchell of Ayr, on examining Helen Frith after her apprehension, declared their belief that she had been recently delivered.

Such was the evidence that might have been brought against the younger prisoner at the time she was apprehended ; but there was no *corpus delicti*—no infant either living or dead had been found. A fortnight after she was committed, the body of an infant was discovered in a striped bag, half buried in the sands of the sea-shore, at Ayr ; and the next point in the case is the identification of this dead infant, with that of which Helen Frith was supposed to have been delivered. The witness before mentioned, the hawker who lodged in the house, deposed, that about ten o'clock in the morning of the supposed delivery, Frith, the elder, left the house, taking with her a pitcher, and before going out, that she went into the closet before spoken of, and that she returned in about three quarters of an hour with the pitcher filled with sand, saying that she had been at the shore for sand, to be used for cleaning the floor ; the elder prisoner's visit to the shore that morning was confirmed by several witnesses. But the identification mainly rested on the appearance of the striped bag in which the infant's body was found on the sands. No witness would say upon oath that this bag was identical with one which had been used for some time previous, as the cover of a cushion in Frith's house ; but several swore that the bag exactly resembled the cover of the cushion, and this cover was not to be found in the house when search was made. The next point in the case is, whether the infant was born alive, and whether there is evidence that it was wilfully destroyed ? On this point we must refer to the medical evidence, which we shall extract nearly entire, when it will be seen, that from it, notwithstanding the strength of the previous evidence on the identification, a seeming ground for doubt thereon arises.

" Dr Crawford recalled—Made examination of the body of the child brought to hospital, along with Dr Mitchell, who drew up a report thereon, in which I concurred. The report is dated 17th July 1846, and is as follows :—

" Ayr, 17th July 1846.—We, the undersigned, do hereby certify, upon soul and conscience, that we have examined the body of a female child, and found the following appearances :—On inspecting the body externally, we found it in a state of putrefaction, with desquamation of the cuticle. It weighed five pounds, and was twenty inches in length. Its mouth and nostrils were stuffed with flax. The umbilicus was in the centre of the body, the cord cut close to the abdomen, and left without a ligature. The scalp was covered with hair, and the nails were full grown. There was an extensive ecchymosis all over the fore part of the neck, and an effusion of blood on the exterior aspect of the trachea. The heart and lungs weighed one ounce, the latter of which were collapsed, the right being considerably decomposed, and sunk when put into water. The left was of a red colour, firm in texture, and floated on the surface when immersed in a vessel filled with water, but on pressure there was no crepitation. The right side of the heart was filled with coagulated blood, the foramen ovale partly open, and the ductus arteriosus impervious. The liver was large, and of a leaden hue, the ductus venosus almost obliterated, and the meconium found in abundance in the lower bowels. We are of opinion, from the perfect conformation of the child's body, and the above mentioned appearances, that it had life at birth, which (appearances) we consider quite sufficient to account for death.

(Signed)

" JAMES CRAWFORD, M.D.

" GEORGE MITCHELL, Surgeon."

"Report says there was 'desquamation of cuticle.' This means that decomposition had gone so far that the skin could easily be stripped from the substance beneath. The weight of the body was five pounds; the ordinary weight of a new born infant is seven pounds; but when the body was found, a portion of the brain, which had been reduced to a pulpy state, and escaped through the openings of the skull, was wanting. All the appearances on the body led me to believe the child had been born at its full time. As to this I have no doubt. Ecchymosis in this case could not have occurred after death. It must have been the result of external violence during life, which might have been inflicted by the hand. The appearances on the neck were quite sufficient to account for death. The stuffing of the mouth and nostrils with tow or flax could not have been accidental, for considerable force was required to withdraw it. The stuffing of the mouth and nostrils, if done when child was in life, was quite sufficient by itself to cause death.

"Cross-examined.—The report is dated 17th July, for it was on that day the body was first seen by Dr Mitchell and me, but the sectio was not made till the 18th. The body had to be washed in a solution of chloride of lime before the sectio could proceed, as it was in a very putrid and offensive state. Supposing injury done to the neck of the child immediately after death, the appearances spoken to would not have been present. Supposing there had been no assistance at the delivery, I do not think that the injury in question could have been inflicted by the mother in an effort to assist delivery. The chin would, in such a case, protect the neck. Besides, the mark on the body found was on the fore part of the neck. If injury had been done by the mother during birth, the marks would have extended around the neck. The ecchymosis was produced by the rupture of some small blood-vessels; and supposing that rupture to have arisen from mechanical deficiency, the ecchymosis would not have been such as appeared on the body examined. There must have been violence to produce that. The ecchymosis arises from suffusion; and without violence suffusion could not take place. In some cases, the ductus arteriosus closes days after birth; in others in weeks; and in a third class of cases, within twelve hours even. Beck mentions one case in which that duct was closed in a day. Though the child die twenty-four hours after birth, the ductus arteriosus may have closed in that time. I have either read or heard of a case, in which, on a sectio, the ductus arteriosus was found impervious when the child had died within six hours after birth; and the same remark applies to the obliteration of the ductus venosus. The closing of the ductus arteriosus, in some cases, is an act, though not universally. It is the opinion of medical authorities in general, that the closing of that duct is a process, though in some instances it has happened in so short a time as to be called an act.

"By the Court.—From the state of the body, I could not say how long it had been dead. The space could not be more than a month; it might be less. Saw nothing to render it unlikely that death had occurred only a fortnight or three weeks before. A portion of the brain had been lost before the body was found, and more escaped before the sectio could be made. On opening the skull-cap, the base of the brain was all which remained; the two hemispheres were gone. In a natural presentation the head of a child would defend the neck from injury during the birth.

"George Mitchell, surgeon, recalled.—Drew out report of 17th July, with Dr Crawford, which is a true report. The appearances on the child's neck will account for its death. They must have been caused by external injury or pressure applied during life. The stuffing of the mouth and nostrils could not be accidental; for there must have been some force in the act. The child, without doubt, had been born alive.

"Cross-examined.—The child was a female child. The average weight of a newly-born child is about six pounds. Couldn't say the weight of such a child's brain. An adult's weighs two pounds; an infant's, of course, much less. The body externally was considerably decomposed, particularly abdomen

and brain. A large portion of the brain had escaped. When body is putrid, its state is unfavourable for observation of appearances after death. The skin here was of a dirty yellow colour, inclining to greenish—ordinary putrid colour. The ecchymosis on neck must have arisen during life. Too much blood suffused to be accounted for by suggillation. The blood of a young child is more fluid or watery than an adult's, but could not say whether more apt to suffuse from lesion. The length of time an infant's blood remains fluid after death depends on the atmosphere. Heat hastens decomposition. The ductus arteriosus, as stated in the report, was impervious. In some cases, a considerable time elapses after birth before that happens; in others it occurs in less, but couldn't specify a particular period, because I have not dissected with a view to that inquiry. The same remark applies to the ductus venosus.

"By the Court.—I do not consider any suffusion after death as ecchymosis. There is a shade of difference betwixt the two. Ecchymosis proper cannot occur after death; though, if vessels are torn just after death, blood may be suffused. The mark on the neck of the body we examined, was ecchymosis proper.

"Mr Logan adduced as witnesses in exculpation—

"Dr Haldane, surgeon in Ayr—Has been in practice six years and a half in Ayr, and twelve years elsewhere. Has had occasion to study the appearances presented by the bodies of children after death. There is a vessel known as the ductus arteriosus in the foetus. It carries the blood from the pulmonary artery directly into the aorta, keeping it from the lungs. Its function is essential before birth; but after birth that function ceases, as then the blood is sent into the lungs. After birth, the function of the vessel being superseded, the vessel itself changes its character. It gradually becomes impervious; very rarely indeed continuing patent. If called to examine the body of an infant, and if, on dissection, I found the ductus arteriosus closed or impervious, I would infer that the child had lived at least twenty-four hours. The time the duct closes is very variable; but the shortest recorded, or of which I have heard, is twenty-four hours. Dr Billard of Paris is considered by the profession to have made the most accurate observations on this subject; and he states in his work that only in one instance out of eighteen cases he had examined was the vessel in question closed at the end of one day after birth. In like manner if I found the ductus venosus obliterated, I would infer that the child whose body presented that appearance had lived a considerable time, a day or days at least. It is generally obliterated before the ductus arteriosus is closed; and is so generally in two or three days. If I had seen in a case what is stated in the report by Drs Crawford and Mitchell as to the body found on the shore, I would have concluded that the child had not died before the end of twenty-four hours after its birth at soonest. Ecchymosis is the effusion of blood into the cellular membrane. The blood of an infant don't coagulate so rapidly as that of an adult, and extravasation more readily takes place. Ecchymosis is sometimes used to express discoloration from post mortem inquiry. Whether that mentioned in the report above referred to was produced in life or after death, I cannot pretend to say, for I did not see the blood. But ecchymosis *might be* produced after death which couldn't be distinguished from that produced in life. A medical man's facility for examination is very much impaired in a body so far decomposed as the one in question obviously was; and as to the appearances in its neck, it must be borne in mind that one part of the neck is one of the parts most subject to decomposition.

"Dr Craig, surgeon, Ayr, recalled—has had considerable experience as an accoucheur, and full opportunities of observing the appearance of children after death. If, on examining the dead body of a child, I were to find the *ductus arteriosus* impervious, I would conclude that the child had lived four or five days. There is one case mentioned by Billard, where it was found impervious though the child had lived only twenty-four hours. If the *ductus venosus* were obliterated, I would infer that the child had lived two or three days. In certain cases—as where the circulation was vigorous before death, and suddenly stop-

ped, ecchymosis may be produced by violence, after life is extinct. In a newly born child the circulation is vigorous, and ecchymosis may be produced on its body immediately after death.

"Cross-examined for the crown. In order to enable me to tell whether an injury was inflicted before or after death, I would require to see the body.

"By the Court.—Ecchymosis in a newly born infant's neck may be produced by pressure.

"This closed the evidence for the defence. Thereafter the jury were addressed by Mr Deas for the crown ; and by Mr Logan for the prisoners. Last of all, the Lord Justice-Clerk charged in his usual full, able, and impartial way. When his lordship finished, the jury retired to deliberate. They remained out of court nearly half an hour ; and, on their return, they "found that a child had been born by Helen Frith ; but that the murder charged was not proven." The court expressed their concurrence in the verdict.

"This case lasted nearly eight hours ; and excited the greatest interest throughout."

To offer remarks on a case of this kind, after a verdict of acquittal, is a matter of some delicacy. It is impossible, however, not to perceive that, if no mention had been made in the medical report of the state of the ductus arteriosus and ductus venosus, the jury could not, on any rational grounds, have refused a verdict of guilty. We are not prepared to affirm that there is any error in the medical report,—we will only remark that if Drs Crawford and Mitchell can satisfy their medical brethren, by a more particular account of the dissection, than that contained in the report, that the ductus arteriosus was really impervious, it will be an important addition to our knowledge, as well in physiology, as in forensic medicine ; for death undoubtedly took place immediately after birth. We know less than could be desired of the range of consequences, when the umbilical cord is left untied, or when it is divided by a sharp instrument close to the umbilicus—that this is a cause of death is certain, and it is equally certain that an infant, in such circumstances, may live for at least some hours ; but we must leave it as a problem for the consideration of our readers, what might have been the effect on the jury of Dr Haldane's answer, if he had been asked, whether he believed it possible that an infant, whose umbilical cord had been cut close to the abdomen, could live long enough to permit the ductus arteriosus to become closed ? Some other points in the report suggest interesting reflections ; for, since there can be no doubt that the infant, found in the sands at Ayr, was put to death, as the effectual stuffing of its mouth and nostrils with flax shows, independently of any other marks of violence, the state of the lungs is a most important consideration. Here, notwithstanding that respiration must have taken place, though probably in a very imperfect manner, the lungs and heart together weighed only one ounce, while the body weighed five pounds,—the kind of weight is not mentioned, but suppose it apothecaries' weight, with twelve ounces to the pound, then the lungs and heart together, are but one-sixtieth part of the entire body, and if it be avoirdupois, only one-eightieth ; and as the heart at birth hardly ever weighs less than three drachms, the lungs, in this case, can hardly have weighed, even at the highest computation, more than the one-hundredth part of the entire body. Here then is a direct negative to Ploucquet's test, which represents the lungs at birth, before respiration, as one-seventieth, and after respiration, as one-thirty-fifth of the entire body ; unless we regard this case as an exception, owing to suffocation having been produced before respiration had been fully established. What is singular besides, is that the right lung, which was considerably decomposed, sank in water ; and that the left, which floated buoyantly, did not crepitate. In the preceding account, we have used the full report of this case, given in the *Caledonian Mercury*, of October 22d 1846, and we have reason to know that it is accurate.

ON THE INFLUENCE OF THE CELL SYSTEM ON THE HEALTH OF PRISONERS.

NEAR Strasburg there is a monastery, which, in the year 1844, having undergone the necessary alterations, has since been used as a prison : it consists of two stories, and contains, in the upper one, 21 cells, and in the lower five, each cell being about the dimensions of 550 cubic feet. The prisoners are divided into two classes, and receive very different treatment. They are, first, those confined for examination, or the remanded ; and, secondly, those imprisoned for punishment. The first class are kept, as far as possible, in solitary confinement, and are never, during the whole period of their imprisonment, permitted to come into the open air ; for their employment they have such occupations as the imperfect light of their cells will permit them to perform. Those imprisoned for punishment are not confined solitarily ; they enjoy, every day, one hour's refreshment in the open air, and work together in large workshops. Debtors receive a similar treatment, except that they are not forced to work, and are generally better fed.

From October 1844 to October 1845, there were placed in confinement 523 persons, of whom 188 were remanded for further investigation, and 345 imprisoned for punishment : the confinement of the greater number of these lasts only for a very short time. Of the whole number, 67, *i. e.*, 1-8th, fell sick. Of these 33 were of the first class, and 34 of the second. From this it follows that, as the first class alone are subjected to solitary confinement, this kind of punishment exerts no injurious influence on the health of the prisoners. Of those who were sick, two laboured under mental alienation, and two were strongly suspected to be only malingers. The affections were chiefly ulcers of the feet, itch (very common), rheumatic and gastric fevers. There were no particular epidemics.—*Casper's Wochenschrift*, No. 49, 1845.

Part Fourth.

MEDICAL NEWS.

NEW PATHOLOGICAL THEATRE OF THE EDINBURGH ROYAL INFIRMARY.

The Managers of the Royal Infirmary have built a new and improved theatre for post mortem examinations. It is capable of accommodating 200 students, all of whom will be enabled to see what passes. It is excellently lighted from above, and furnished with wash hand basins for the students, water pipes, jets d'eau, and every possible convenience. Instead of being situated at the top of the house, as formerly, it is built in the area, close to the dead house, and is easily accessible. A small cabinet is attached, for the private observations of the pathologist, and the only point, perhaps, which admits of condemnation, is placing a large door in such a situation that, when open (as it almost always is), it obstructs all the light available for microscopic purposes.

We trust that this convenient and handsome theatre will induce the students of the infirmary to pay more attention to morbid anatomy than heretofore. The importance of pathological studies is becoming daily more and more apparent, and the only place where a knowledge of it can be derived, is where the bodies are examined after death.

GLASGOW MEDICAL SOCIETY.

The Society opened its thirty-second annual session on Tuesday, October 6, in the Faculty Hall, St Enoch Square, when the following gentlemen were elected office bearers for the ensuing year.

William Lyon, Esq., *President*.

Dr Weir and Dr Perry, *Vice-Presidents*.

Dr Alexander M. Adams, *Treasurer*.

James M. Adams, Esq., *Secretary*.

OBITUARY.

THE LATE DR JOHN THOMSON.

It is with great regret that we announce the death of Dr John Thomson, late Professor of General Pathology in the University of Edinburgh, author of the Lectures on Inflammation, and several important works, at the advanced age of eighty-one years. Few individuals in our profession have been so useful in their day, and acquired such influence and reputation, under circumstances which at first presented so much difficulty. It is to be wished that one qualified for the task will ere long publish a detailed account of his life and writings. In the meantime, we shall attempt to recount the principal features in his career, as well as the limited data and time at our disposal will allow.

Dr John Thomson was born in the town of Paisley, on the 15th of March 1765. His father was a silk weaver, an occupation in those days of respectability and considerable emolument. Circumstances, however, of a peculiar nature, but highly honourable in themselves, rendered his means even more confined than those belonging to others of his class. The son's education, therefore, was of the most rudimentary description, and of a kind that only fitted him for his father's trade, at which he worked until the age of eighteen years. At this time, he, with some difficulty, obtained permission to educate himself for one of the learned professions, and commenced the labour of self-instruction amidst poverty and hardships of every kind. In this the energy and perseverance which always formed so conspicuous a part of his character enabled him to succeed so well, that in two years he bound himself apprentice to Mr Whyte, a highly respectable medical practitioner in his native town.

With Mr Whyte he remained three years, performing the usual drudgery of a surgeon's apprentice. All his leisure moments, however, were devoted to study; and, among other branches of knowledge, he particularly directed his attention to Botany. During this period he made a complete collection of the Flora of Arran; and his botanical pursuits and excursions were the means of introducing him to Mr Alexander of Ballochmyle. This gentleman was so much pleased with the intelligence and enthusiasm of young Thomson, that he became his patron, and, on the expiration of his apprenticeship, introduced him to Mr W. Hamilton, the Professor of Anatomy in Glasgow, under whom he dissected and studied for two years.

In 1789 he came to Edinburgh, and entered the pharmaceutical department of the Royal Infirmary. He subsequently became clerk and house surgeon, and at the same time attended the several classes in the University. He was one of those who heard Cullen's last introductory lecture. He continued a student three years, during which period he took an active part in the various debating societies, more especially the Royal Medical Society, of which he was one of the annual presidents during the session 1791-2. At this time the subject of Inflammation and the doctrines of John Hunter were warmly debated in the Society, and it is recorded of Mr Thomson, that he read a paper on Inflammatory Catarrh, the debate on which continued three entire nights. He was also a member of the Chemical, Natural History, and Speculative Societies.

In 1792 he went to London, and attended various classes there. John Hunter had recently given up teaching anatomy; but it was in his dissecting-room, under the guidance of Sir Everard Home, that Thomson spent most of his time.

In 1793 he returned to Edinburgh, and, by the assistance of some kind friends who advanced the necessary funds, he was enabled to become a Fellow of the

Royal College of Surgeons. He then entered into partnership with Mr Arrott, and continued with him in general practice up to the year 1800. During this interval he gave two courses of lectures on Chemistry, and completed the translation of Fourcroy's Chemistry, with notes, which was published in three volumes, 1798-99-1800. Some of his chemical pupils at this time were young men of rank and ability, then studying at the University, who continued ever afterwards his steady friends.

At this period of his life Mr Thomson became a keen politician, and, during a time of very extraordinary political excitement, rendered himself conspicuous by the boldness of his opinions, and the energy with which they were expressed. He was favourable to popular constitutional rights, and never shrunk from avowing his sentiments, although conscious that such avowals prevented his obtaining any official preferment, and induced a large majority of the influential and wealthy to regard him with distrust and aversion. By others, however, Mr Thomson was greatly esteemed, and he secured the friendship of the leaders of his party, from whom he was afterwards enabled to procure the most important benefits.

In the year 1800 he became one of the surgeons of the Royal Infirmary. The surgical department of the Institution was then in a very unsatisfactory state, the officers being chosen from the College of Surgeons, to act for the short period of two months in succession. He published, therefore, a pamphlet, entitled, "Outlines of a Plan for the Management of the Surgical Department of the Royal Infirmary," in which the inconveniences of the system, and its injury to the patients in the house, are forcibly pointed out. He also insisted on the utility of clinical lectures, not only to the students, but to the sick. "If," he says, "there can be anything which can induce the rash practitioner to pause, the inconsiderate to reflect, or the ill-informed to seek for instruction, it is the necessity of explaining the grounds of his practice, and his opinions of disease, to an audience, selected from the students of the University." The representations of Mr Thomson succeeded in changing the duration of appointments to the Infirmary, and we find that he continued to act as surgeon up to 1810. All the arguments he employed, as well as those urged by others since, however, have not yet succeeded in convincing the Managers of the importance of every medical officer being obliged to give clinical lectures. Whilst in Glasgow the plan has been adopted, with great benefit both to students and patients, in Edinburgh a monopoly still exists in this important branch of medical education, which is one of the worst features of its medical school.

At this time no separate courses of lectures were given on surgery in Edinburgh, and all the instruction to be derived on the subject was obtained from the course of the Professor of Anatomy. Shortly after Mr Thomson's appointment to the Royal Infirmary, therefore, he commenced to give lectures on surgery, which were very numerous attended. The wants of the army and navy at that period induced many young men to study medicine for the public service, and these derived much of their information from the lectures in question. In 1802, he formed one of the celebrated eight who commenced the Edinburgh Review. The critiques of Haygarth on the prevention of infectious diseases, of Camper on Hernia, and of Heberden's Commentaries, in the first and second numbers of that periodical, were, we understand, from his pen. It may be said, indeed, that his reviews in the first volumes of the work, gave it in some degree the character of a medical journal.

In 1803, he again went to London, and attended for a time the lectures of Baillie and Cruikshank. The lectures he had himself given had made him perfectly acquainted with the existing state of the principles and practice of surgery. They had, in an especial manner, caused him to direct his attention to the important subject of inflammation. At this visit, therefore, he spent a great portion of his time in the Museum of John Hunter, endeavouring to extract from the numerous preparations every fact connected with the subject. He may be said to have lived in the museum for a considerable time, for he

studied the preparations one by one, and made copious notes, still extant, of the results of his observations.

In 1804, he succeeded in inducing the College of Surgeons to found a Professorship of Surgery, to which he was appointed. This step was strongly opposed by the members of the University, who conceived it interfered with the privileges of Dr Monro, the Professor of Anatomy and Surgery. The Magistrates were even requested to interdict the delivery of his lectures; and, late at night, on the evening preceding the introductory lecture, he received a message from the Lord Provost, desiring him not to proceed. Some idea of the determination of his character may be gathered from his answer—"Present my compliments to the Lord Provost," he said, "and say that the lecture is prepared, and that it is my intention to deliver it on the morrow to the students of Edinburgh, although I should read it through the bars of a prison." The lecture was given in the Hall of the College of Surgeons, the next day, to the President, Fellows, and a numerous auditory; and his course was continued regularly, without interruption, for a period of sixteen years.

With a view of having his lectures properly illustrated, he also induced the College to found a Museum. He presented to it his own private collection, which was rapidly augmented by the contributions of the Fellows generally. It has since been enriched by the collections of Barclay, Charles Bell, Cruikshank, Knox, and others, and is now the most extensive and valuable museum in Great Britain, that of John Hunter in London excepted. He further commenced the formation of a private library, and cultivated a taste for reading among his pupils, by lending them books—an advantage at that time the more valuable, as the University did not then, as at present, allow works to be taken out of the library. His collection of books, when he retired from practice, was the richest and most extensive of any practitioner in Edinburgh.

In 1806 he was appointed by the Whig Government, then in power, Professor of Military Surgery, and he gave occasional lectures on particular subjects connected with military medicine and surgery, whilst he continued his courses as Professor of the College of Surgeons.

During the whole of this time he had made numerous original researches on various subjects connected with surgery. His observations and experiments on hernia, necrosis, and wounds and diseases of the arteries, were very valuable, and communicated in his lectures. He possessed, in an eminent degree, the art of exciting the enthusiasm of his pupils, and directing their minds to follow out particular subjects of research. There can be little doubt that the works of Jones on Secondary Hemorrhage, of Travers on Wounds of the Intestines, and of Macdonald on Necrosis, owe their origin to this source. But it was the subject of inflammation which had ever continued to command his deepest attention. He traced with great minuteness all the early phenomena of the process in the web of the frog's foot, by means of the most perfect microscope he could procure. He made several original observations on the nature of the lymph exuded, which he separated from the clot, and personally examined into every fact in any way connected with the subject. His Lectures on Inflammation were published in 1813, and it was every where acknowledged to be the best book upon that important morbid process which had appeared since that of Mr Hunter. All that had been done since seemed to be at once lost sight of, for it not only contained an extension of Hunter's views, but every thing that was valuable and important put forth by succeeding and contemporary writers. It has been said of this work, that it not only established the fame of its author, but extended that of John Hunter also, for, owing to the naturally obscure style of that great man, his doctrines had never been properly understood, until they were again put forth and clearly explained by Thomson. The book enjoyed a very extensive reputation, and was translated into French, German, and Italian. Although soon out of print, a second edition was never published, partly because it would have entailed so much trouble on the author, at a time when the labours of prac-

tice and other pursuits, which he then considered more important, incapacitated him for the task. Copies have frequently been sold in MacLachlan's sale-rooms at quadruple the original price.

As soon as peace was proclaimed in 1814, he made a tour on the Continent in company with Dr Robert Renton and Dr Mackenzie,¹ with the object of visiting its celebrated medical institutions. For this purpose he travelled through France, the north of Italy, Germany, and Holland, examining every thing of even the slightest professional interest. We have been informed that, at Padua, he saw some cases of chicken pox, which were considered by the physicians to be small pox—an incident only worth mentioning from the probability it gives rise to, that this might have constituted the first link in that chain of inquiries which led him afterwards to maintain their identity. In Halle he inspected the museum of the Meckels, and offered to purchase it, on his own responsibility, for the Edinburgh College of Surgeons. It is much to be regretted that this was not consented to, as at present that fine collection is almost entirely destroyed.²

On hearing of the battle of Waterloo in 1815, he immediately went to Brussels with Dr Somerville, to assist in attending upon the wounded, and to make observations on several points of great interest in surgical practice, more especially the treatment of gun-shot wounds. The result of his observations were made known in a work published in 1816, drawn up at the suggestion of the director-general, and dedicated to the Duke of York, entitled "Report of Observations made in the British Military Hospitals in Belgium, after the battle of Waterloo."

In 1815 he also established the New Town Dispensary. It is true that the Royal Dispensary, founded by Dr Duncan, existed, but at that time the physicians and surgeons did not visit the poor at their own houses. This was to be the principal feature of the new institution, of which Dr T. was made consulting physician, and Dr Alison, Mr Turner, Drs MacLagan, H. Davidson, Murdoch, and Buchanan, the acting medical officers. Under their auspices the dispensary continued to flourish, notwithstanding the opposition it met with from Dr Duncan, and even the managers of the Royal Infirmary. The opposition in this case was so great as to defeat its own ends, for as the object of the dispensary was really good, publicity only served to do it benefit. In this institution Dr Thomson always felt a deep interest, and at different times gave two distinct courses of lectures for its benefit, one on varioloid diseases, and another on diseases of the eye.

In 1818, he published his "Observations on the non-mercurial treatment of Syphilis," in which he maintained, what is now very extensively admitted, viz. the non-necessity of this drug in the disease. From numerous cases occurring in the castle garrison of Edinburgh, he pointed out, that syphilitic affections were cured as safely and quickly without as with mercury, and that secondary symptoms were not more frequent. Mr Rose, of the horse guards, had previously maintained the same doctrine, which was fully supported by the practice pursued in many English regiments. It was to Dr Thomson, however, that the promulgation of this truth in Scotland was principally owing, and so ably did he support it both in his writings, and especially in his lectures, that the use of mercury commenced from that time to decline among Scotch practitioners.

In the same year he published "Observations on the Varioloid disease which has lately prevailed in Edinburgh," followed in 1820, by an "Account of

¹ Of Newcastle-under-Line.

² When examined by the writer of this notice, between six and seven years ago, the wet preparations were nearly destroyed for want of spirit, and the dry ones were crumbling to pieces from moisture and mildew. All the bones of various animals had been thrown together in a heap, the apex of which was as high as the ceiling, while the circumference was bounded by the walls of the apartment.

the Varioloid Epidemic lately prevalent in Edinburgh, and other parts of Scotland, with observations on the identity of chicken-pox, with modified small-pox." This subject was still further discussed and illustrated, in a subsequent work—"Historical sketch of the opinions entertained by medical men respecting the Varieties, and the secondary occurrence of Small-Pox, 1822." In this series of works he acknowledges the necessity he felt of abandoning an hypothesis, that he had entertained for thirty years. He points out that small-pox often occurs epidemically in a remarkably benignant form, and that then, as well as when recurrent, or modified by vaccination, it presents all the characters described by some authors on varicella, or chicken-pox, and could not be distinguished from it. He showed that in the epidemic which prevailed in Edinburgh during 1819-20, small-pox and chicken-pox existed together, frequently in individuals inhabiting the same room, and sleeping in the same bed. He describes well authenticated cases of individuals inoculated with small-pox, in whom the eruption assumed the appearance of chicken-pox, and again, of persons inoculated with chicken-pox, who had small-pox well characterised. His works contain the account of numerous experiments carried on in the castle garrison of Edinburgh, fully establishing the general facts now stated. These have never been controverted, and they sufficiently demonstrate the unreasonableness of the proposition which maintains that two distinct contagions should exist at the same time, each of which is protective of the other. The discussion of this subject was conducted by Dr Thomson in the most able manner. No facts were overlooked which could bear upon it, no arguments opposed to it that were not fairly overcome. The greatest pains were taken in collecting reports from various places, and from individual practitioners; and he himself visited numerous towns and localities affected with the disease epidemically, in order personally to satisfy his own mind, and to collect observations for the conviction of others. The works of Dr Thomson present, even now, the best account of the history and nature of the small-pox and its varieties, extant.

On the death of Dr Gregory, in 1821, Dr Thomson resigned his professorships of Surgery and Military Surgery, and became a candidate for the vacant Chair of Physic. This was one of the most memorable contests of the kind which ever occurred in Edinburgh, and terminated in the appointment of Dr James Home, to the exclusion of two such men as Drs Abercrombie and Thomson. He now, however, became a consulting physician, and afterwards joined the College of Physicians, of which he was president. He had previously graduated at King's College, Aberdeen, and in 1822-3 he commenced a course of lectures on the Practice of Physic, which was repeated regularly up to the session 1829-30. His were the first lectures of the kind in Edinburgh, founded upon pathological anatomy, in preference to a symptomatology: and with a view to their illustration, he commenced that magnificent collection of drawings, now in the possession of his son, Professor William Thomson of Glasgow. He was fortunate enough to find in Dr Carswell one who was enabled to second his efforts with the pencil of an artist, and the knowledge of a morbid anatomist. This gentleman was employed, at the sole cost of Dr Thomson, in making pathological drawings for him, both at home and abroad, for the period of five years. The collection at present consists of upwards of 1500 original coloured drawings, besides several hundred copies and engravings, arranged on an anatomico-physiological basis, of lesions in various organs, and systems of organs. The whole constitutes the finest collection of coloured pathological drawings, with the histories of the diseases attached, now in existence, and was formed at an expense of upwards of L.2000.

Dr Thomson entered upon the subject of medicine and internal pathology with the same ardour as he did into that of surgery and external pathology. One of the first subjects which attracted his attention was the system of medical education pursued in the University, and he published two pamphlets on this important subject, addressed to the patrons and professors, in which he forcibly

pointed out the necessity of two things—1st. That of having surgery taught by a practical surgeon, and separated from the Chair of Anatomy. This suggestion he succeeded in fully carrying out. 2dly. The necessity of having a Clinical Professor of Medicine, as well as a Clinical Professor of Surgery. On this head he was not so successful, although his arguments, seconded by the able letter of Sir James Clark, cannot fail to convince any one, that of all the branches of medical education, none can be so important or useful to the student as that termed clinical, and that it should be taught by such only as are enabled to give their undivided time and energies to the subject.

In 1826 a commission, appointed by Lord Liverpool's government, had pointed out the propriety of founding a Chair of General Pathology, a result to which the evidence of Dr Thomson materially contributed. When the opposition shortly after came into power, the political interest he possessed with his party, enabled him to succeed in getting the suggestion acted on, and the first appointment was conferred on himself. He commenced his course in the session 1832-3. Advancing age and ill health obliged him to retire from the duties of the chair, and from practice in 1836.

Dr Thomson always entertained a most profound respect for the talents of John Hunter, and of Dr Cullen. We have seen that he endeavoured to extend the labours of the first in his lectures on inflammation. As a teacher of the practice of physic, however, he was obliged to dwell much on the writings of the latter, and was insensibly led to do justice also to his life and writings. He edited an edition of his works, with additions from his manuscripts, which appeared in 2 vols. 1827; and subsequently wrote his biography, the first volume of which appeared in 1832. The second volume constituted the labour of his retirement after 1836, and we are happy to announce that it is so far advanced that it will soon appear under the auspices of his eldest son.

After his retirement, Dr Thomson lived at Morland Cottage, near Edinburgh, occasionally, however, visiting Edinburgh or Glasgow. There he was much visited by his friends, and particularly by foreigners of distinction, who never failed to pay him their respects. Advancing age and weakness gradually prevented much bodily exertion, but his mind retained all its vigour up to the period of his death. The writer of this notice had the pleasure between two and three years ago of exhibiting to him, under the microscope, some very perfect injections of various tissues, and he will not easily forget the intense interest he manifested on examining them. His early botanical pursuits seemed to return upon him in his retirement, and the garden became one of his principal sources of amusement. He also continued to take a lively interest in politics, and read the daily newspapers to the last. In early life, Dr Thomson laboured under asthma, which often prevented his visiting patients, and at one time confined him to his house almost for the space of a year. This was one of the causes which led him to abandon general practice. Subsequent to 1820, he suffered greatly from repeated attacks of rheumatism, which induced him to avoid all exposure to cold. The immediate cause of death was exhaustion, partly from diarrhoea, and partly from inactivity of the digestive organs. For some weeks previously, he was conscious of his approaching end, which he met with the utmost tranquillity, 11th October 1846.

The public character of the late Dr Thomson was, during his life, differently considered by various individuals. A man, who not only took a decided part in politics, and that at a time when the war of Tory and Whig raged fiercest, but who was continually introducing alterations in the schools of education, to the supposed detriment of long-established privileges, was naturally regarded by many with jealousy and dislike. It is certain that if in this manner he created strong and bitter opponents, he also made warm and active friends. By some he was regarded as the upholder of useless or mischievous innovations, whilst by others he was considered as the introducer of reforms in the highest degree beneficial to the University and Medical School. No one, however,

could for a moment doubt the undaunted energy and courage with which he advocated what he considered right : the perseverance with which his efforts were continued, and the ability with which his plans were executed and carried to a successful termination. He inspired the Whig government and its organs in Scotland with the most unbounded confidence in the correctness of his judgment, and was thus enabled to found three distinct medical chairs in the University, two of which he himself occupied, and this in the face of every kind of opposition which parties of great weight and influence could throw in his path. He induced the College of Surgeons to found a professorship of surgery, which did not previously exist in Edinburgh, and to form a museum, which, with the exception of one in London, is, as we have said, unrivalled in this country. Through his agency, an improved system of gratuitous medical relief to the poor was introduced, whereby they were visited at their own homes, a system which, although now greatly abused, was justly considered at that time to be a great boon to the indigent population. He bequeathed to his sons a very extensive medical library, and the finest collection of coloured drawings of diseased structures now in existence. He may be said to have been the indirect means of bringing forward the best illustrated work on morbid anatomy Britain ever produced—viz., that of Dr Carswell. When it is further considered that these things were done by one of humble origin, destitute of resources, and for a long time struggling with pecuniary difficulties, it must be conceded, that if minds are to be judged of by the influence they produce on other minds, by the suggestion and successful execution of important public measures, or by the achievement of great results from small means, Dr Thomson's was one of no ordinary character.

As a public lecturer, most persons consider him to have occupied a very prominent rank. He was not an extemporaneous speaker, his lectures being carefully prepared and written. He did not possess the graces of oratory, although he spoke fluently and without hesitation in his unpremeditated attempts. But whatever was deficient in ornament or style was more than counterbalanced by truthfulness and the most energetic and impressive delivery. We remember hearing his lectures on the varioloid disease in 1834. His white hairs told that age was making inroads, but the lectures soon gave evidence that the mind was as fresh and vigorous as ever. Behind him the wall was covered with numerous coloured drawings, which gave the lecture room the appearance of a portrait gallery of men, women, and children, affected with small-pox. After forcibly describing the absurdity of the then prevailing doctrine, he rose from his chair, and, rod in hand, walked up and down the lecture room, pointing out the exact likeness of this or that person he had attended in different epidemics or under particular circumstances, and thus forced conviction on the auditors by a species of actual demonstration. The subject of syphilis and its non-mercurial treatment called forth all his peculiar powers. It would be in vain attempting to describe the power of his arguments, and the horror produced in his hearers, by the account he gave of the mercurial treatment, seconded as it was by perfect coloured representations of its poisonous results, in every disgusting form. With equal energy he denounced the use of mercury in all diseases of hepatic origin, without due inquiry as to their being curable by this or any other treatment. "Gentlemen," he would sometimes say, pointing to a delineation of malignant disease of the liver, "you might as well expect by rubbing mercury on the belly of a pregnant woman to produce absorption of the fœtus and its membranes, as to cure such a disease as this by mercurial treatment." In the following manner he would direct attention to the custom then, and still too prevalent, of giving this drug indiscriminately. "If the bile be too thick, give mercury ; if the bile be too thin, give mercury ; if there be too much bile, give him mercury ; if there be too little, give mercury ; if the liver be too large, give mercury ; if there be abscess, or tubercle, or cancer of the liver, give always mercury. In short, mercury, mercury, nothing but mercury."

As an author Dr Thomson was singularly clear and perspicuous, and had the art of concentrating the information derived from numerous sources, into the smallest compass. He was also remarkably cautious in what he published, a quality very apparent in his controversial writings, in which, although his opinions were strongly stated and ably argued, he was always courteous to his opponents, and never descended to personality.

In the intercourse with his medical brethren, Dr Thomson always maintained the honour and dignity of the profession, readily extending towards the junior branches of it the protection of his name when necessary, and the advantage of his experience when it was needed. He inspired his patients with great confidence by the openness of his manner, and the cheerfulness of his conversation. In this respect he offered a marked contrast to his rival, Dr Abercromby, who was taciturn in the extreme. It must be acknowledged, however, that he was not so generally called in by his brethren, or ever commanded so large a practice as that physician. The fact is, he was a great sceptic with regard to the power of medicines, and was too honest to conceal his want of faith. He was opposed to the use of heroic remedies, and trusted greatly to the power of nature. A gentleman consulted him, who had long been a martyr to chronic dyspepsia, and we have been informed by the practitioner who visited the case with him, that all he recommended was a little of Gregory's powder. "But, Doctor," said the patient, who had been for some time anxiously waiting for his advice, "I have taken that for the last six months without the slightest good." "Well," said his physician, "it is a medicine which has one great advantage, for I have never known it do any harm." A homœopathist was once breakfasting with him, and explaining his system of treatment. "I do not see," he observed, "that our systems differ very much. You give the millionth of a grain, while I give nothing, and apparently with the same result." This want of confidence in drugs, especially of any that were new, greatly injured him in the eyes of the general practitioner, and of the public. The same contempt for novelties caused him to ridicule the stethoscope on its first introduction.

The private life of Dr Thomson was most exemplary. He was twice married, and had children by both his wives. He always stated that he should educate his sons to be teachers of medicine, and his eldest is now Professor of the Practice of Physic in the University of Glasgow, and his youngest Professor of Physiology in the University of Edinburgh. There is an excellent portrait of him, painted by Geddes, and engraved by Hodgetts. There is also a bust of him by Fletcher.

The following is a list of Dr Thomson's published writings :—

1. Edition of the Translation of Fourcroy's Chemistry, with Notes. 3 vols. 8vo. 1798-99-1800.

*2. Outlines of a Plan for the Management of the Surgical Department of the Royal Infirmary. 1800.

*3. Facts respecting the Professorship of Surgery. 1806.

*4. Observations on Lithotomy, 1808 ; and Appendix to the same. 1810.

5. Lectures on Inflammation. 1813.

6. Report on the Wounded at Waterloo. 1816.

*7. Observations on the Non-mercurial Treatment of Syphilis. 1818.

*8. Observations on the Varioloid Disease. 1818.

9. Account of the Varioloid Epidemic, &c., with views upon the Identity of Chicken-pox and Modified Small-pox. 1820.

10. Historical Sketch of Opinions respecting Small-pox, &c. 1822.

*11. Hints on the Preparatory Education of Graduates in Medicine. 1824.

- *12. Observations on the same subject, with additional Hints. 1826.
 13. Edition of Cullen's Works, with additions from the Manuscripts. 2 vols. 1827.
 *14. Remarks on the Institution of the Chair of Pathology in the University. 1831.
 15. Life of Cullen. 1st vol. 1832.
 16. History of Animal Magnetism and Somnambulism. 1836 and 1837.

*The numbers marked thus * are those of Pamphlets.*

BOOKS RECEIVED.

1. Guy's Hospital Reports. Second Series. Vol. 4. 8vo. London, 1846.
 2. On the Pathology and Treatment of Scrofula; being the Fothergillian Prize Essay for 1846. By Robert Mortimer Glover, M.D., &c. 8vo. London, 1846.
 3. Dr Underwood's Treatise on the Diseases of Children, with Directions for the Management of Infants. Tenth Edition. With Additions by Henry Davies, M.D., &c. 8vo. London, 1846.
 4. Practical Observations and Suggestions in Medicine. Second Series. By Marshall Hall, M.D., F.R.S., &c. 8vo. London, 1846.
 5. Urinary Deposits: their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, A.M., F.R.S., &c. 8vo. London, 1846.
 6. A Guide for the Proper Treatment of the Teeth, with a view to their Preservation, &c. By W. Kencely Bridgman, Dentist. 12mo. London, 1846.
 7. Records of Harvey, in Extracts from the Journals of the Royal Hospital in St Bartholomew; with Notes by James Paget, Warden of the Collegiate Establishment, &c. 8vo. London, 1846.
 9. Chemistry of the Four Seasons, &c. By Thomas Griffiths, Professor of Chemistry at St Bartholomew's Hospital, &c. 8vo. London, 1846.
 10. The Moral Aspects of Medical Life, consisting of the "AKESIOS" of Professor K. F. H. Marx. Translated from the German, with Biographical Notices and Illustrative Remarks, by James Mackness, M.D., &c. 8vo. London, 1846.
 11. Notes on the Epidemic Cholera. By Hartley Kennedy, M.D., &c. Second Edition. 8vo. London, 1846.
 12. Experimental Researches on the Food of Animals and the Fattening of Cattle, with Remarks on the Food of Man. By Robert Dundas Thomson, M.D., &c. 12mo. London, 1846.
 13. On the Nerves of the Uterus. By Thomas Snow Beck, Esq., Surgeon. From the Philosophical Transactions, Part 2. 4to. London, 1846.
 14. Observations on the Report published by the Health of Towns Commission, &c. By Richard White Young, M.D., &c. From the Edinb. Med. and Surg. Journal, No. 169.
 15. Observations on the History of the Cure of Popliteal Aneurism by Compression. By the Editor of the Dublin Quarterly Journal of Medical Science. 8vo.
 16. Essai sur les Fonctions du Foie, et de ses Annexes. Par N. Blondlot, M.D., &c. 8vo. Paris, 1846.
 17. Recherches Anatomopathologiques et Cliniques sur Quelques Maladies de l'Enfance. Par F. L. Legendre, M.D., &c. 8vo. Paris, 1846.
 18. Handbuch der Rationellen Pathologie. Von Dr J. Henle, Professor der Anatomie und Physiologie in Heidelberg. 1st Band. Einleitung und allgemeiner Theil. 8vo. Braunschwig, 1846.
 19. Diagnostische und Pathogenetische Untersuchungen, in der Klinik des Herrn. Geh. Rath's Dr Schonlein, &c. Von Dr R. Remak. mit einer Kupfertafel. 8vo. Berlin, 1845.
 20. Die wichtigsten Lebens, Bedürfnisse ihre Aechtheit und Gute, &c. Von Dr Adolf Duflos, Professor der Chemie, zu Breslau, &c. 8vo. Breslau, 1846.
 21. Die acute Entzündung der serösen Häute des Gehirns und Rückenmarks. Von Dr Joseph Neisser. 8vo. Berlin, 1845.
 22. Ueber die Gesetze nach welchen die Mischung von Flüssigkeiten und ihr Eindringen in permeable Substanzen erfolgt, &c. Von Julius Vogel. 8vo. Göttingen, 1846.
 23. Holländische Beiträge zu den Anatomischen und Physiologischen Wissenschaften, herausgegeben von Dr J. van Deen, Dr F. C. Donders, and Dr Jac Moleschott. 1 Band. 1 Heft. 8vo. Utrecht und Düsseldorf, 1846.

24. Verbrennung und Athmen, Chemische Thätigkeit und Organisches Leben. Von Fr. Nasse, Lehrer der Medicinischen Klinik zu Bonn. 8vo. Bonn, 1846.

25. Lehrbuch der Nervenkrankheiten des Menschen. Von Moritz Heinrich Romberg, Professor der Heilkunde, &c., zu Berlin. Ersten Bandes dritte Abtheilung. 8vo. Berlin, 1846.

26. Klinische Ergebnisse, gesammelt in dem K. K. Poliklinischen Institut der Universität. Von dessen Assistentärzte, Dr Edward Hensch, und Herausgegeben von Dr M. R. Romberg, Director des K. K. Poliklinischen Instituts, &c. 8vo. Berlin, 1846.

27. Beiträge zur Experimentellen Pathologie und Physiologie, herausgegeben von Dr L. Traube, Erstes Heft. 8vo. Berlin, 1846.

28. Neue Untersuchungen über den Bau des Menschlichen Schlund, und Kehlkopfes, &c. Von Dr Caspar Theobald Tourtual. 8vo. Leipzig, 1846.

29. Ueber die Natur und den Nutzen der Galle, eine Chemisch-Physiologische Abhandlung. Von Ernst Alexander Platlin. 8vo. Heidelberg, 1845.

30. Untersuchungen über Galle, Ein Beitrag zur Physiologischen und Pathologischen Chemie. Von Med. Dr E. F. von Gorup-Besanez. 8vo. Erlangen, 1846.

31. Physiologie des Nervensystems,

Mit Besonderer Berücksichtigung Pathologischer Zustände. Von Dr A. Spiesspract Arzte in Frankfurt, A.M. 8vo. Braunschweig, 1844.

32. Die Krankheiten der Kartoffeln, insbesondere die im Jahre, 1845, pandemisch herrschende nasse, Fäule dargestellt. Von Julius Münter. 8vo. Berlin, 1846.

33. Handwörterbuch der Physiologie mit Rücksicht auf Physiologische Pathologie. Von Dr Rudolph Wagner, &c., 13th, Lieferung. 8vo. Braunschweig, 1846.

34. Die Schwedische Nationale und Medicinische Gymnastik. Von Hermann R. Richter, Doctor und Professor der Medicin. 8vo. Dresden und Liepsig, 1845.

35. Gewebe, in Pathologische Hinsicht. Von Julius Vogel (Abgedruckt Von Handwörterbuch der Physiologie.)

36. Erweiterte Blutgefäße in der Entzündung. Von Dr C. Bruch, Privatdocenten in Heidelberg (Abgedruckt von Henle und Pfeuffer's Zeitschrift.)

37. Ueber Entzündungskugeln. Von Dr C. Bruch (Abgedruckt Von Henle und Pfeuffer's Zeitschrift.)

38. Beiträge zur Morphologie des Chylus und Eiters Inaugural bhandlung Von Heinrich Müller. 8vo. Würzburg, 1845.

TO THE EDITORS OF FRENCH AND ITALIAN JOURNALS.

The Editors and Publishers of French and Italian Journals are requested to forward the exchange Journals to M. J. B. Balliere, Rue de l'Ecole de Médecine, directed to our Edinburgh publishers.

TO THE EDITORS OF GERMAN JOURNALS.

The Editors and Publishers of German Journals are requested to forward the exchange Journals to Messrs Williams and Norgate, Henrietta Street, Covent Garden, London, through M. Hartmann, in Leipsic, directed to our Edinburgh publishers.

ERRATA IN LAST NUMBER.

Page 269, line 23—for "salicylate" read "salicylate."

Page 269, second line from the bottom—for "Failure even with application of the greatest acuteness," read "Principles not applied with the utmost strictness."

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No. 6. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Amputation at the Shoulder Joint for Axillary Aneurism.* By JAMES SYME, Esq., Professor of Clinical Surgery.

IN the beginning of July, Dr Cunningham of Glasgow called upon me with a gentleman suffering from an Axillary Aneurism, of which the following history was given:—

The patient, a stout, square made man, of short stature, fifty years of age, while, as he supposed, in perfectly good health, about a fortnight before, when getting hastily off a carriage, had made a false step, and nearly fallen backwards. In the effort to prevent this, and to secure his hat, he was conscious of throwing his left arm upwards and backwards with great force. No inconvenience was noticed subsequently, until a few days after, when he felt a difficulty in keeping his arm close to the chest; and, upon searching for the cause of this, discovered a swelling in the armpit, which throbbed, or pulsated. He immediately applied to Dr Cunningham, who, recognising an axillary aneurism, proposed a consultation.

I found the aneurism so large as to fill the axilla, but quite circumscribed, and distinctly pulsating. The pulse, at the wrist of the affected limb, was rather weaker than in the other arm. The complexion and general aspect of the patient were such as are usually supposed to denote disease of the heart; the pulse was irregularly intermittent, and the action of the heart was perceived over a larger extent than could be considered natural. But it was stated that there had been no alteration for a long while in the

appearance of the patient, or in his ability for exertion, which was represented to be that of the most perfect health, and I could not detect any distinct evidence of serious organic alteration in the heart. It therefore seemed to me, that although the case could not be considered in any view as favourable to the success of an operation, it was, nevertheless, not one in which the patient should be refused the chance of escape thus afforded from the fatal result of his disease, which otherwise appeared all but certain.

He lost no time in coming to Edinburgh for the purpose of submitting to the operation; and, upon doing so, to prepare for it, was confined to bed on the anti-phlogistic regimen.

On the day of his arrival, I remarked that the pulse throughout the affected arm had become very weak; and on the following day I could not detect it either at the wrist or in the tumour, which, during the few days that had elapsed since I first saw it, had acquired a great increase of size. The prospect of spontaneous coagulation derived from this change, would have made me delay the operation, even if all other circumstances had been favourable to its performance. But the pulse became very quick; the arm swelled to a large size from œdematous effusion; and excessive pain was felt throughout the limb. On the following day, another unpleasant symptom was presented by a diffused blush over the forearm, of that peculiar hue which is wont to precede mortification, resulting from the inflammation of parts imperfectly supplied with blood. Small doses of antimonial wine, with the solution of muriate of morphia, were administered internally, to allay the general excitement; and soothing lotions, containing opium, with acetate of lead, were applied to the seat of pain. On the morning of the 13th, the arm, from the elbow downwards, suddenly became cold and devoid of sensation. The redness, leaving this part, ascended towards the shoulder, the pulse could hardly be counted, and there was every sign of speedy sinking under the violence of constitutional reaction.

It was, therefore, with no less surprise than satisfaction that, during several succeeding days, this apparently hopeless condition was observed to assume gradually a more promising character. The arm which, from the time it became cold, had been simply wrapped in flannel, regained its proper temperature; the redness of the skin disappeared; the pain in a great measure subsided; and the patient resumed the state of tranquillity that had existed previously. The swelling of the arm also, which had attained an enormous extent, especially towards the axilla and shoulder, which it raised almost to the patient's ear, and stretched strangely outwards from his side, sustained a marked diminution.

In consideration of these encouraging changes, the hope of a spontaneous cure was again entertained, and the pulsation, which could be perceived only by the ear, was ascertained to be confined to an extent so small, that there could be no doubt as to

coagulation having taken place throughout a large portion of the cavity. But on the back part of the shoulder, where the skin had been extremely distended, when the swelling was at its height, and had not since either regained its natural consistence, or lost the purple colour then assumed, there now began to be presented the appearance of a slough. It was hoped that this might be the effect of pressure limited to the integuments, and separation of the dead part was anxiously watched, with a view to ascertain whether it was confined to the surface, or extended to the cavity. In the course of a short time, the worst fears were verified by a gradual enlargement of the aperture, exposing to view a mass of coagulum and sloughy muscular substance, through which arterial blood began to ooze, and stain the patient's shirt.

Upon the 16th of August, I requested my colleague in the Hospital, Dr Duncan, together with Dr Cornwall, who had taken the ordinary management of the case, to consider what could be done to prevent the obviously impending hemorrhage, which threatened to prove speedily and almost instantly fatal. Ligature of the artery was quite out of the question, as the arm, though its temperature was restored, had not regained either sensation or voluntary motion, and, independently of all other objections to this operation under existing circumstances, would certainly have been deprived by it of the scanty vital power still remaining. I therefore proposed amputation at the shoulder joint, which met with approval, and, as there was no objection on the part of the patient, proceeded without delay to this formidable undertaking.

The patient having been brought to the edge of his bed, I made an incision from the acromion downwards and backwards through the sloughy aperture, and, from the same point, another downwards and forwards, so as to join their terminations at the lower part of the axilla, and form two nearly equal flaps, which, being held aside, allowed the disarticulation to be readily completed. As pressure could not be effected upon the vessel above the clavicle, in consequence of its elevation by the tumour, a fearful gush of blood issued from the cavity of the aneurism when laid open, but was instantly arrested by Dr Duncan, who placed his thumb upon the part from which he felt the jet proceed, and retained it there, until, by the application of eight or ten ligatures, I prevented hemorrhage from the smaller vessels. Upon examining the state of the axillary artery, we found no distinct orifice, but merely a funnel-shaped expansion where it communicated with the aneurism. I therefore made an incision from the upper extremity of the wound quite to the clavicle, in the direction of the vessel, cut through the tendon of the pectoralis minor, and, by careful dissection of the condensed textures in which it lay imbedded, exposed a sufficient portion of the artery for safely applying a ligature. This having been done, the edges of the wound were brought together, and retained by stitches, with the assistance of compresses and a bandage.

The patient bore the operation well, made no particular complaint after it, and steadily advanced towards recovery, although the separation of sloughs was not completed until the end of a fortnight. But while this process was gradually accomplished, the cavity rapidly contracted, so that when the whole of the dead parts were cast off, it was nearly closed. The ligature came away on the 15th of September, and the patient then returned to Glasgow, where he was soon afterwards able to resume the duties of a public situation, which he holds in that city.

I have been induced to relate so particularly the circumstances of this case, by the persuasion that they not only possess interest on their own account, but are calculated to illustrate some important points in the pathology of Aneurism. Notwithstanding all that has been said and done to elucidate this subject, it still affords considerable room for diversity of opinion, which admits of being harmonised only by the careful accumulation of well ascertained facts. But as the acquisition of facts is not more conducive to truth than the rejection of erroneous observations, I cannot omit the present opportunity of remarking, that now when the unfortunate "Gosport Case" has ceased to be a subject of discussion, and all the parties concerned in it, have received their respective awards, so far as the verdicts of juries and public opinion are concerned, the records of surgery should no longer be encumbered with the preposterous and incredible allegation, that the rupture of a trivial sub-cutaneous branch of the femoral artery caused and maintained a pulsating aneurism of the groin. The serious arguments which took place relative to the treatment of an aneurism, that plainly could have had no existence except in the imagination of the operator and his colleagues, would have been amusing, unless associated with considerations of a very painful kind, and afford a remarkable example of the extent to which the judgment may be biassed by an erroneous impression. It was doubtless an absurdly exaggerated account of the primary hemorrhage that suggested the idea of aneurism—led to its supposed detection—prompted the untoward operation—and was still urged in defence of this most unnecessary proceeding, even after dissection had shown that while the trunk of the artery remained perfectly undisturbed, the only vessel that could be discovered to have any connexion with the injury was a little nameless twig, equally incompetent to establish an aneurism as to emit "a jet of blood three feet" from the orifice of a long, narrow, and oblique wound.¹

¹ Authorised statement by Mr Potter—*Lancet*, 1845.

ARTICLE II.—*Cases Illustrating the Injuries to which the Aortic Valves are Liable during Muscular Efforts.* By RICHARD QUAIN, M.D., Fellow of University College, London; late House-Physician to the University College Hospital; Licentiate of the College of Physicians.

Submitted to the Pathological Society of London, October 20th.

CASE 1. *Separation from the Aorta of the United Attachments of Two of the Aortic Valves. Signs of Regurgitation and Hypertrophy. Death.*—A music smith, twenty-six years of age, had always enjoyed good health, and had been accustomed to work hard; he had never had rheumatism, palpitation of the heart, or shortness of breathing. In August 1843, he one day observed a workman in his employment working indolently with a sledge. Annoyed at this, and using some expression of censure, he wrested the implement from the man, and commenced working vigorously with it himself. After giving a few blows, he was suddenly seized with a most distressing sensation in the region of the heart, which compelled him to cease his efforts at the moment. He retired to his apartment faint, unable to make an effort, feeling “an uneasy shaking of the heart,” suffering from shortness of breath, and hearing a peculiar noise “up his chest, and neck, and in his ears.” This noise prevented him that night, and subsequently, from sleeping. He was seen by a medical gentleman, who prescribed some medicine for him—he continued at light work for a week, when, getting worse, he came under my care. He was first seen by Mr Mercer, who, during a temporary absence, was doing duty for me at the hospital, and this gentleman immediately concluded that some injury had occurred to the aortic valves. In a day or two I saw him. He then complained of the uneasy sensation in the region of the heart, and of its palpitation. His breathing was short, and he was unable to make any effort; on lying down he still heard the noise; he felt a throbbing in the neck, and in any part on which he rested. There were then very distinct evidences of imperfection of the aortic valves: in the situation of those valves, and replacing their sound, was heard a loud ringing musical murmur—the first sound was also accompanied by a murmur in the same situation, but much less loud: there was present the peculiar diastolic or regurgitant pulse. Leeches were applied to the region of the heart, and some sedatives administered with slight advantage.

In five weeks from the date of the accident, it is noticed that “there are now very evident signs of enlargement of the heart. The dulness over it and its impulse are extended, and the force of the latter is increased. The murmur is so loud that it can be heard at several inches distance from the aural end of the stethoscope, and

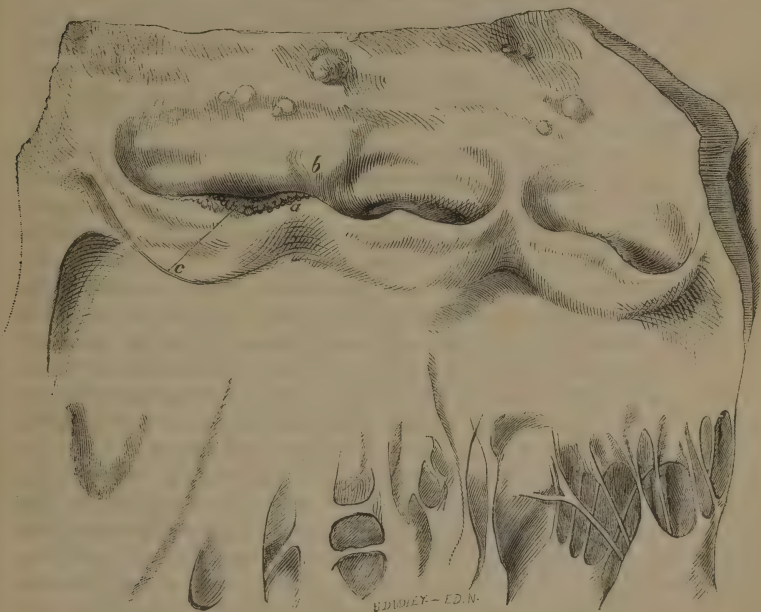
the diastolic pulse is so marked as to give a very peculiar appearance to the course of the superficial arteries."

In January 1844, four months from the date of the accident, it is stated in my notes, that "he has, up to this period, derived benefit from the use of a mixture containing ether, digitalis and prussic acid; but he is now suffering from bronchitis." In a few days he experienced relief from the latter by the internal administration of tartar emetic, and by a liniment containing croton oil, applied on the chest. On the 9th of this month, when trying to do some heavy work, he was again made conscious of a change in the heart's action, and, on seeing him, I found that the loud ringing murmur with the second sound, and the slight murmur with the first, were both replaced by the ordinary double bellows murmur.

In the progress of this case, some further changes occurred in the symptoms and signs already described, and some fresh symptoms were added. It is unnecessary to trace those changes in detail, and an epitome will complete the history of the case. He was occasionally much better, and able to do some work. He was subject to repeated attacks of bronchitis, of dyspnœa, and orthopnœa; he had palpitation of the heart, occasionally gastrodynia; his symptoms were aggravated by indigestible food, and he had angina pectoris. The signs of hypertrophy of the heart increased; the loudness of the murmur diminished, but its character remained the same. The attacks of bronchitis were generally relieved by tartar emetic, combined with lobelia inflata, by leeches and counter-irritations; ether and digitalis generally relieved the dyspnœa and palpitation. Finally, in July 1845, after nearly two years' suffering, the attacks of dyspnœa became more frequent, his legs became anasarcaous, he lost flesh, suffered more severely from the pain and palpitation; the urine was occasionally albuminous. The physical signs were nearly as before, regurgitation through the jugular veins being now very evident; and on the 10th August he died suddenly in one of his attacks of dyspnœa.

On a post-mortem examination, the chest being opened, the heart, enveloped in the pericardium, was found to have encroached much on the situation of the inferior lobe of the left lung. There were traces of old disease of the apices of the lungs; the bronchi were thickened, and the mucous membrane congested. All the cavities of the heart were enlarged and filled with blood. The arch of the aorta was somewhat dilated. The heart weighed $22\frac{1}{2}$ oz. The chief disease was found at the entrance of the aorta; here it was noticed that the conjoined attachments of two of the valves to the aorta had been separated from the wall of that vessel, and thus those valves were allowed to drop below the level of the third, which retained its connexions. In the drawing, *a* indicates the junction between the valves, *b* is the point at which the separation has taken place; here the wall of the vessel was raised into a superficial elevation about one-third of an inch in length and one-fourth of an inch

across. The margin of one of the valves was everted slightly, and studded with small granulations, represented at *c*. It seemed as if



The Wood Cut represents the Conjoined Attachment of Two of the Aortic Valves, torn (at b) from the Valves of the vessel.

a small strip of the living membrane had been torn off at this point. On trying the valves with water before the vessel was cut open, they were found to be quite inefficient; not so the pulmonary. The liver was much enlarged, extending as far as the umbilicus; the stomach was healthy; the kidneys were congested, and irregularly mottled.

My object in the present communication being rather to illustrate the origin of this and similar lesions, than to enter on the general history of regurgitant valvular disease, its progress, its symptoms, or treatment, I shall refer but briefly to the facts in the above history which are connected with those points.

First, may be noticed the rapidity with which the hypertrophy occurred; in five weeks it was very decided.

Secondly, The great extent of the hypertrophy; the heart being increased to nearly three times its ordinary volume. A condition which will explain the improvement which occurred in the patient's symptoms. The increased muscular power of the heart overcoming in some degree the insufficiency of its valves.

Thirdly, The proneness to bronchitis which the patient exhibited—a consequence of the irregularity in the circulation.

Fourthly, The fact of the patient himself being conscious of the morbid sound, and of its change during the progress of the case (on whatever this change depended) is curious.

Fifthly, The treatment which relieved the bronchitis has been mentioned. The effect on the palpitation of a mixture, containing ether and digitalis in full doses, was very striking. The frequency of the heart's action was apparently subdued by the latter, whilst its energy was increased by the former.

In reference more immediately to the nature of the injury, it may be argued that the pathological appearances were the result of congenital malformation—two valves being present in the place of three; or of chronic disease. Such suppositions are refuted by the history of the case, which clearly assigns the period when the accident occurred, and antecedent to this there were no symptoms of either malformation or disease. Moreover, in cases in which but two valves exist, they are generally so arranged as to be effective in their action, and then the traces of three valves are never so evident as they were in this case. Were the present appearances due to chronic disease, we should find some induration or deposit as its result. The post-mortem appearances coincide with the opinion formed in the first instance, and entertained through the progress of the case, viz. that the aortic valves had sustained, during the excited efforts of the individual, an injury which had rendered them insufficient. When the case presented itself to notice, I was unable to find the history of any similar to it, though several of lesion of the mitral valve were recorded, and I believed the case to be little more than a pathological curiosity. Subsequent experience has however shown me that this impression was wrong, and that such cases do occur with sufficient frequency to render a record of them necessary. Dr Williams, whose extensive opportunities of observation in these diseases, could not fail to have brought them under his notice if this were so, has shown me some drawings which very much resemble that which is here presented, and he is confident that the origin of the lesion represented by them, and in some other cases remembered by him, may be traced to a cause similar to the above. In connexion with this opinion, the following cases in outline will be interesting.

CASE II.—*Separation of the Convex Margin of one of the Aortic Valves from the Aorta—Signs of Regurgitation—Hypertrophy—Death.*—A porter, resident in Paris, when in good health, endeavoured, in a state of excitement, to force open with his shoulder a door which had been closed against him. He too, as the smith, was seized at the moment with an oppressive sensation in his chest, and when examined with the stethoscope, the aortic valves were found to be imperfect. His breathing became embarrassed, his heart hypertrophied, and his body anasarcaous. He died in about eighteen months from the date of the accident. The imper-

fection of the aortic valves was found to depend on the convex (inferior) margin of one of them being torn from its attachments, resembling thus a pocket which had been ripped or torn at the end. The heart was much hypertrophied. For the facts of this case I am indebted to Dr Jones Quain.

CASE III.—*Signs of Regurgitant Disease in the Aortic Valves—Hypertrophy—Anasarca.*—This case came under my own notice, and the patient still lives. He is a carpenter, fifty-four years of age, and accustomed, until the date of this accident, to work hard.

He had met with several severe injuries, but never had rheumatism, nor any disease of the heart of which he was aware. About five months before this history was taken, he was one day engaged in carrying timber on his back across a yard. He had carried several loads, when, arriving at the last, it was made much heavier than any which preceded it. He carried it, however, to its destination, and whilst in the act of stooping to admit of its removal, he was suddenly seized with a severe pain or stitch in the region of the heart, and by it he was compelled to let fall his load. Palpitation of the heart and shortness of breathing commenced at the same time; and at night on lying down, he heard a noise which has since then distressed him. Orthopnoea, ascites, and anasarca were subsequent events for which he was treated. The latter symptoms had been relieved when I saw him. He then complained of dyspnoea, cough, palpitation of the heart, and of inability to do any work. He could not lie down in bed. He presented such well marked signs of imperfection in the aortic valves, and of hypertrophy of the heart, that it will not be uninteresting to extract the record which I took of them. "Both sides of the chest are equal in circumference, showing therefore an increase of the left. The apex of the heart is *seen* and *felt* to beat below the seventh rib. The motion has an undulatory appearance. The strength of the impulse is not proportioned to its extent; a distinct vibratile thrill is *felt* over the entire region of the heart, also over the right carotid and subclavian, but to a much less degree in the left. The diastolic pulse is seen and felt. On *percussion*, dulness in the region of the heart is found to extend upwards from the seventh rib, in a line with the right shoulder, 5 inches; vertically from the third costal cartilage, $3\frac{3}{4}$ inches; and directly across the centre of the heart, $3\frac{1}{4}$ inches. By *auscultation*, the second sound is not heard, but its place is taken by a loud musical murmur, which is heard all over the chest, but most distinctly at its upper part, and over the base of the heart. There is also a murmur, but much less loud with the first sound; it is heard in the same situation, but more distinctly in the carotids than that with the second." His urine was slightly albuminous.

He was cupped on the region of the heart; he had small doses of blue pill and sedatives given him. He was so far relieved after

a few weeks by this treatment, that he was then enabled to lie down, and even to use when he required it, slight exertion.

CASE IV. *Separation of the united attachment of two Valves from the Aorta—Signs of Imperfection—Hypertrophy—Death.*—The particulars of this case have been given to me by Dr Bence Jones, and the appearances which he has sketched very much resemble those represented above. In abstract the case is as follows:—A stableman, 26 years of age, who never had rheumatism, was admitted into St George's Hospital for palpitation of the heart, which had commenced twelve months previously. At the time it began he was running by the side of a horse, which he was exhibiting for sale. He had on admission cough, dyspnœa, and orthopnœa; he had also the physical signs of great hypertrophy of the heart, together with a murmur heard at its base, and no second sound, phenomena, indicating disease and imperfection of the aortic valves. He became anasarcaous, and died in about two months from the date of his admission. After death, the heart was found enormously hypertrophied. The mitral valves were healthy, the aortic valves were slightly thickened. Two of the valves had the septum between them broken down, both being formed into one irregular pouch. Atheromatous deposit was present in the ascending aorta and in the arch of that vessel. The liver was very large. Kidneys and spleen healthy.

The conclusions which the cases related enable us to arrive at are:

1. That the valves placed at the entrance of the aorta are liable, during muscular efforts, to serious injuries.
2. That those injuries seem to occur when the heart is acting vigorously under excitement.
3. That they are not necessarily immediately fatal, but that this will probably be the result in from twelve months to two years, when the lesion is such as to interfere materially with the function of the valves.
4. That the symptoms, signs, and effects of this lesion resemble those produced by disease of the valves.

London, October 1846.

Note.—Since this article has been in type, the second volume of Dr Latham's book on Diseases of the Heart has appeared. It contains the particulars of Dr Jones' case, and some valuable observations on the nature of the injury here described.

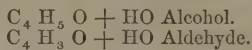
ARTICLE III.—*On the Mode of Testing the Presence of Minute Quantities of Alcohol.* By ROBERT D. THOMSON, M.D., Lecturer on Practical Chemistry in the University of Glasgow.

Read before the Philosophical Society of Glasgow, 7th January 1846.

THE determination of the presence of minute quantities of alcohol is a chemical point of some importance, especially in judicial cases. The usual method hitherto adopted for detecting alcohol in mixed fluids, is to subject the fluid suspected to contain it to distillation at a temperature not greater than that which is required to cause the alcohol to pass over into a receiver, and then to judge of the presence of spirit by the vinous odour of the distilled fluid. When alcohol in the form of gin, whisky, or brandy, &c., has been swallowed, if death takes place within a short period of the introduction of the fluid, the odour of the spirituous liquors will be distinctly perceptible to one inspecting the interior of the stomach; but if a considerable time should elapse, as, for example, a few hours between the introduction of the spirit and death, it is rarely found that the smell can be detected. Again, if the person should die under the influence of spirituous liquors, and the stomach were not examined within a limited period, the odour of alcohol might not be perceptible, since as absorption goes on for several hours after death, and as volatile fluids appear to be peculiarly susceptible of rapid absorption, the whole of the alcoholic fluid might be removed from the intestinal canal into the circulation. It has been affirmed that alcohol has been detected in the brain of gin drinkers; but as the mode of testing adopted was merely the impression made upon the nerves of smell, we may perhaps be allowed to doubt the accuracy of the experiment. It has been affirmed that the gin obtained from the brain has been inflamed; and if this were correct, we should then be entitled to quote nasal and ocular proofs of the presence of alcohol in the brain; but as the gin of the shops is so weak—that in its natural state it will scarcely burn—we may also be permitted to be sceptical in reference to this second proof. These views do not tend to disprove the possibility of the presence of alcohol in the vessels of the brain and other portions of the body, because we know that hydrocyanic acid passes to the very extremities of the body, and can be distinctly detected by its odour, until it has either been removed from the system by the combustion of respiration, or simply by exhalation from the lungs. Now, alcohol and hydrocyanic acid are somewhat analogous in a chemico-physiological point of view, as they possess a powerfully sedative effect upon the system, are exceedingly volatile, readily absorbable, and require much oxygen to resolve them into simpler forms. For these reasons it appears highly probable that alcohol

may be capable of detection in the vessels of the system when it has been swallowed in large quantities. The experiment could only, however, be made on the inferior animals, and we should require some more definite test than the mere smell of the alcohol. There are other circumstances, in a judicial point of view, in which it may be of importance to detect minute quantities of alcohol. For example, to distinguish small portions of the liquid preparations of opium. In medicine there are used the solution of opium in alcohol; the solution of opium in wine; the solution of opium in alcohol with benzoic acid and ammonia; the solution of opium in vinegar; and lastly, the solution in water. When these preparations are entire, there is not so much difficulty in their discrimination, but if they have been exposed to the air, much of the alcohol escapes, and they may all become analogous to a solution of opium in water. To distinguish those which contain alcohol from those which do not, enables us to divide them into two classes, and thus to simplify the inquiry. For these, and many other cases where minute detection is necessary, I have been in the habit for some years of employing a method which depends upon a well-known fact, the dehydrogenation of alcohol by means of oxygen. For this purpose the fluid to be tested, if coloured, or a mixed one, is to be distilled in the water bath until one third of it passes over. Should the liquor contain any acetic acid, this may be saturated previous to distillation with carbonate of soda, in order to remove the vinegar smell, which might interfere with the odour of the subsequent test. Into the distilled liquor supposed to contain alcohol, should be dropped a crystal or two of chromic acid, and the liquor stirred. If the smallest quantity of alcohol is present, the green oxide of chrome will begin to be disengaged, and at the same time the smell of aldehyde is distinctly perceptible.

The production of aldehyde from the alcohol depends on the separation of oxygen from the chromic acid, its union with the hydrogen of the alcohol, and their consequent removal in the form of water; the formulæ for the two bodies being—



H_2 Difference.

By means of this simple test it is possible to distinguish a drop of alcohol in half an ounce, and even in an ounce of water. When chromic acid is not at hand, the experiment may be made with bichromate of potash and sulphuric acid. This, perhaps, affords the most distinct method of performing the experiment, and may be conducted as follows. Drop in a few grains of powdered bichromate into a small flat glass (which tapers towards the bottom) containing the solution to be examined, and add a few drops of oil of vitriol. If alcohol is present the green oxide will be observed to be developed on the surface of the undissolved salt, and the cha-

racteristic odour of aldehyde will speedily be perceptible. As an instance of the utility of this test it is only necessary to give one illustration. Some months ago I had sent to me by Dr Joseph D. Hooker, a bottle containing seven cubic inches of a fluid which was obtained from a species of Eucalyptus, or gum tree, in Van Diemen's Land—a fluid which is drunk by the natives as an intoxicating liquor. It possessed a powerful odour of vinegar, so powerful, indeed, that it overcame every other smell which might be present. On neutralizing it with carbonate of soda, it was found to require 28·6 grains of this salt to saturate the acid, equivalent to 10·12 grains of dry acetic acid in the whole fluid. On distilling one-third of the liquor, a fluid came over having a faint odour of foreshot. When chromic acid was added to it, or bichromate of potash and sulphuric acid, the liquor became green, and the odour of aldehyde was powerfully evolved. This proved the presence of alcohol. On evaporating the liquor in the retort, a small quantity of sugar and needle-shaped crystals remained. The latter when treated with sulphuric acid, gave out a strong odour of acetic acid. These were satisfactory proofs that the Eucalyptus sugar is capable of fermentation, and that the alcohol produced from it is convertible into acetic acid, facts which show us that the Australian sugar is not manna or peculiar, but common sugar.

ARTICLE IV.—*Rubeola among the North American Crees.* By
WILLIAM SMELLIE, M.D., H.H.B.C.S.

IT has often been observed that, among uncivilized nations, epidemic diseases are in general much more fatal than in civilized society. The cause of this forms an interesting subject for investigation, and would still appear to be in a great measure unexplained. The most obvious reason, and one which will first present itself to any one who looks into the subject, will appear to be the difference in the habits of the former, their prejudices, and their neglect or ignorance of that salutary care which seems indispensably necessary to protect the susceptibility of the system from dangerous complications. This in many instances may go a great way to account for the fact, but there would still appear to be some other causes which are not so easily explained. The following details, I think, will go far to shew that this conjecture is not without reason:—

Rubeola has during the past Summer ravaged the Territories of the Hudson's Bay Company throughout the northern department, and decimated the Indian population. It was introduced into Red River Settlement from the United States during last Spring, and as soon as the river navigation was opened in the Summer, rapidly diffused itself throughout the more northern districts. However, it is only with the epidemic as it occurred at Fort York that I am

at present concerned, as it was only here that it came under my personal observation. The first boats from Red River arrived here on the 15th of June; the crews, chiefly *Metifs*, almost to a man affected with the disease, but in such a mild form that they were able to continue their duty again, and departed inland in the course of two days. These men are perfectly Indian in their habits, rowing or tracking, and carrying their burdens over miry portages in sunshine and rain, sleeping in the open air, or in a rude tent formed of their oars and an oiled cloth, and their feet for two or three months scarcely ever dry; their diet is also particularly unadapted to disease, consisting of Pemmican, which is a compound of dried buffalo meat and suet, and flour not generally of the best quality, made into a paste with water, flattened into cake, and hastily cooked before the fire; or, if time will permit, fried in buffalo suet: a diet almost the same as that which the Indians around York Fort subsist on at that season; so that all these circumstances combined, were manner of life alone to be looked into to account for the effects of epidemic disease, should have rendered them as susceptible of the severity of the attack of measles as any of the aboriginal tribes.

About ten days after the arrival of the boats already mentioned, some cases of measles appeared among the children of the Crees encamped outside the Fort: the first cases were none of them fatal, although the complications attending some of them presented more acute symptoms than several of those succeeding which proved fatal. The disease rapidly spread to the different encampments in the district, and also attacked some young people in the Fort. It soon became alarming: Violent Influenza became epidemic among the white population, an affection which has previously proved proportionally severe among the Indians at this place, and now, in almost every instance seemed to be superadded to the other disease: for a time every case presented very dangerous symptoms, which often ran very rapidly to a fatal termination; inflammatory affections such as Pneumonia, Pleurisy, Endocarditis, and Dysentery, some cases of the latter of the most violent description, and which terminated fatally in one or two instances in the course of twenty-four hours, became prevalent, sometimes accompanying the eruption, at other times immediately following its disappearance, and at other times after the lapse of a few days, when the patient being convalescent incautiously exposed himself; it being altogether impossible to prevent an Indian doing so unless he were locked up; while he is able to stand he must be hunting or fishing, up to the knees in mud and water. During the most violent period of the epidemic it assumed in a number of cases all the symptoms of *rubeola maligna*; the eruption being of a livid appearance, or never advancing fully; with fits of transient delirium, and an indescribable sensation of approaching death without any marked violent symptoms. I consider that alarm and despondency at seeing numbers dying around them in a great measure produced the rapid

sinking observed in many cases, as the occurrence of an epidemic disease is never ascribed by them to natural causes, but is considered to be the effects of some malignant spell exerted by the necromancers of their enemies, or the direct wrath of the *Great Spirit*. The treatment generally adopted, and which was found most beneficial in affections of the heart and lungs, was general depletion and antimonials while the symptoms were acute, subsequently calomel and opium combined with antimonial powder and ipecacuan, administered in the form of a pill, and pushed in some instances till the mouth was slightly affected. In dysenteric cases, which were in general most fatal, abstraction of blood was often impracticable from the rapid sinking of the vital powers; the attack was ushered in with excruciating pain in the epigastric region, accompanied by frequent watery stools mixed with blood, a violent burning sensation in the whole course of the œsophagus, the tongue loaded, dry and shrivelled, and the teeth covered with sordes: The extremities speedily became cold and the pulse almost imperceptible, the features collapsed and despairing, and death soon closed the scene: Where dysenteric symptoms assumed a more sub-acute type, the most efficacious treatment was found to be general depletion followed by Dover's powders in full doses, repeated every three or four hours, four or five times successively, and alternating with jalap and bitartrate of potash, which I found to be a laxative more mild in its operation than castor oil, even when combined with a few drops of tincture of opium, the latter frequently occasioning painful tenesmus. In more chronic cases the great resort was calomel and opium. In almost every instance I had to complain grievously of want of attention paid to the strict injunctions laid on them regarding the food they should make use of, and the care that was necessary to keep themselves warm and dry; but a Cree Indian tent is the very worst field for enforcing these injunctions: it is at one time uncomfortably close; and the covering is drawn up a little on the poles at two opposite points, and a current of cool air allowed to play upon the perspiring bodies of the invalids; at another time the rain is pouring in through the openings in the moose-skin coverings till it stands in pools on their blankets; it is impossible to convince them of the prejudicial effects of the former, the latter can scarcely be prevented while their dwellings are of such a primitive description. There was never any hospital at this place; extensive disease being comparatively unknown till within a few years ago. It is the opinion of those who have been long acquainted with the Indian habits that it would be impossible to get any of them to submit to hospital regulations; I am inclined to think differently: I may be wrong. Yet, notwithstanding a futile attempt which was made last Summer to convert a wooden shed outside the Fort into an hospital (from which the invalids crawled out and in at pleasure, and the planked floor of which they complained of as feeling very hard under their mats compared with the softer bosom of the earth on which they

were accustomed to tent; which had no obvious advantage over their former dwellings farther than that it protected them better from the vicissitudes of the weather, while they remained inside of it, and which we were led to abandon after a short time, as the advantage thus gained was scarcely equivalent to other disadvantages incurred), I consider, from what I have observed during my short intercourse with them, that an hospital under strict regulations, where there would be nurses to take care of the patients, and a janitor to see that none passed out or in but such as were dismissed or admitted by order, would tend materially to diminish the extraordinary waste of human life which has been witnessed during the late epidemic.

I had the opportunity of making no more than one *post mortem* examination; by those who held the management of the honourable Company's trade in this country, it was not considered prudent to attempt it, seeing that it might endanger the good understanding subsisting between them and the natives; the latter have a particular antipathy to this, which they consider as an outrageous insult to the remains of their friends and relations, and which can be washed away only in the blood of the offender. If such liberties were persevered in, it would without doubt, ultimately be known to some of the parties concerned, who, I am led to believe, would not scruple at time, place, or circumstances, to have their revenge. However, I got one subject secretly conveyed into the Fort; the case selected was one which had presented symptoms of the greater part of the observed complications combined; this was a man about thirty years of age, he had been sixteen days ill, and was considerably emaciated; during the first half of that time no serious symptoms had presented themselves, but latterly he complained of severe constriction of the lower part of the chest, an anxious feeling in the region of the heart, and a tendency to syncope; a few days before death a burning sensation in the œsophagus with vomiting of ingesta, pain in the course of the colon with sanguineous purging, and transient delirium were superadded; in a fit of the latter which occurred about an hour before his death, he shewed surprising muscular energy. About five hours after death I proceeded to examination of the body. *Autopsy. Chest.*—The lungs almost entirely exsanguineous; of a dry spongy appearance. The air-cells apparently much more attenuated than natural, and the substance emitting loud crepitation on being pressed between the fingers; inferior lobes quite white and almost dry on being cut into; superior lobes livid, and containing a bloody serous fluid not in large quantity; *air passages* pale and clean, and no mucus discoverable. The *heart* displayed on the anterior surface of the right ventricle, a white patch of the size of a half-crown, apparently a vesication of its serous coat; there was no fluid in the pericardium. A recent polypus of coagulated lymph enveloped in a cyst occupied each of the auricles, and passing down through the auriculo ventricular opening by an attenuated process, was attached to the

bottom of the respective ventricle; that of the left auricle occupied almost the whole of the cavity, the remaining space being filled with clots of venous blood. *Abdomen*.—The *stomach* was entirely empty, and presented a livid purplish hue on the greater part of the mucous surface, especially towards the cardiac extremity. The *gall bladder* was preternaturally large, and contained about half a pint of bile. The hepatic vessels and the substance of the liver containing very little blood; the arch of the *colon* was much diminished in calibre, on its convex aspect the coats of the bowel much thickened and injected with coagulated lymph; the mucous surface of an inky black colour; the other intestines were apparently natural in appearance. *Brain*.—The ventricles contained a very small quantity of serous fluid, and the plexus choroides in each had the appearance of being washed, so completely were they exhausted of blood; no appearance of congestion in any part.

The epidemic disappeared in the course of six weeks after it broke out. During that period 167 cases came under my observation: of these 153 were native Crees, and 14 either Metifs or persons of European extraction born in this country, chiefly the former; of 153 Crees 145 were treated in their camp, and 8 within the fort, these last being either those married to Europeans or Canadians in the service, or some of their nearer relations. Of the 145 treated in the Indian camp, 104 presented either dangerous complications or sequelæ, and 40 of these 104 cases were fatal. Of those 8 Crees treated in the fort only one case presented any complication, rather severe pneumonia, but the individual eventually recovered. Of the 14 Metifs, &c., who were likewise treated within the fort, no case presented any complication, and no mortality occurred among them. The following is a tabular statement of the results as influenced by the period of life:—

145 Crees treated in the Indian Camp.					8 Crees treated in the Fort.				14 Metifs, &c.			
Age.	Cases.	Complications.	Recoveries.	Deaths.	Cases.	Complications.	Recoveries.	Deaths.	Cases.	Complications.	Recoveries.	Deaths.
50 and upwards	13	13	2	11	1		1					
30 to 50	37	37	22	15	1		1					
20 to 30	36	27	36		4	1	4		2		2	
10 to 20	21	12	19	2	1		1		6		6	
Under 10	38	15	26	12	1		1		6		6	
Total	145	104	105	40	8	1	8		14		14	

The principal subject of inquiry here is, the cause why the same epidemic should present such different characters in different varieties of the human species, and in those of the same variety in different circumstances. When we observe that all the mortality in the above table took place in the Indian camp, we are led to sup-

pose that the severity of the disease was owing to their peculiar manner of life. But, observe again, that among those within the fort, eight Crees and fourteen Metifs, &c., one complicated case occurred, and that among the former, being the smaller number, and, in general, the attendant febrile symptoms were more violent and longer continued among them than among the others. A greater difference in the severity and general type of the disease was observed, on the one hand, among the Metifs and Canadians engaged in voyaging on the river, and, on the other hand, among the Indians engaged in the same duty; both parties living on the same diet, undergoing the same fatigue, and exposed to the same vicissitudes of the weather. If there is not something indigenous to the Indian's constitution which renders him more susceptible of such disease, the cause must in a great measure be attributed to the depression of spirits and general despondency which seizes on him when disabled by sickness. On this I shall not attempt to enlarge; I leave it for others to determine if I am right in my conjecture, but I feel myself convinced that in this instance there must have been some other cause at work to produce the effect in question than any to which I can attribute it.

Fort York, Hudson's Bay, Sept. 10, 1846.

ARTICLE V.—*Description of a New Microscope, for the Use of Medical Practitioners at the Bed-side.* By DAVID GRUBY, M.D., Professor of Histology, &c., Paris.

My object in causing the formation of this microscope, was to furnish practical medical men, and naturalists initiated in histological studies, with an instrument that could be easily transported in the pocket, whilst it preserved all the clearness, precision, and other advantages of larger ones. For a long time, efforts have been made to render the use of the microscope more extended and easy, by diminishing the volume; but, up to the present day, no one has succeeded in giving to such an instrument either the optical or

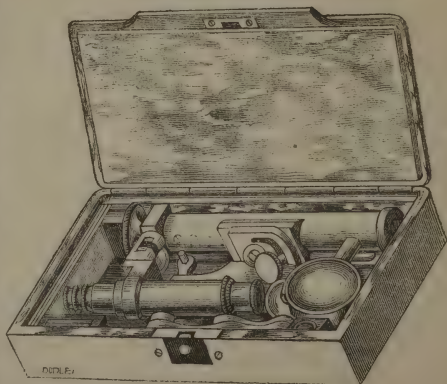


FIG. 1. *The Microscope, as seen within the Box.*

mechanical precision every observer finds necessary for the prosecution of accurate investigations.

The microscope I now introduce to the notice of the profession, magnifies from 5 to 800 diameters linear. The image is so clear and distinct, as to bear comparison with that produced by the large and best instruments. All the glasses are perfectly achromatic, and the field of vision is as extensive as that of other microscopes. It may be used both for transparent and opaque objects. There are two adjustments, one coarse and rapid, the other fine and micrometric; two series of lenses, both triplets, and a single achromatic lens. There is also a micrometre adapted to the extremity of the eye piece, measuring the one-hundredth of a millimetre.

The box which contains the microscope, is 4 inches long, 2 inches broad, and 1 inch in depth. It is the size of an ordinary snuff-box, and in addition to the necessary optical and mechanical parts, contains slips of glass, a forceps, and a needle and knife mounted in ivory handles. In short, for all the purposes for which it is intended, it is complete. The accompanying woodcuts, representing the instrument exactly one half the real size, will give a better idea of it than the most labour'd description.

I have employed this microscope for a year, in order to place it in all the circumstances and vicissitudes a small instrument is likely to undergo, and it is only after arriving at the conviction of its utility and real benefit to observers, that I have decided on making it public. The first model was executed after my direction, by M. Brunner, the able optician of Paris. The price is L.6.¹

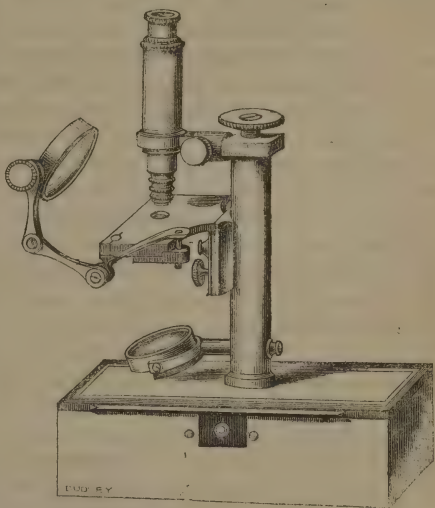


FIG. 2. *The Microscope, mounted and screwed on the Lid of the Box.*

¹ We have had one of those instruments in our possession upwards of a month, and have found it exceedingly convenient in visiting patients, and in making post-mortem examinations at private houses. As stated by Dr Gruby, however, it will only be useful to those who are already familiar with the employment of microscopes; it is in no way adapted to the student, or to those commencing the practical study of Histology.

ARTICLE VI.—*Notice of several cases of Malformation of the External Ear, together with Experiments on the state of Hearing in such Persons.* By ALLEN THOMSON, M.D., Professor of Physiology in the University of Edinburgh.

Note.—The following pages contain the substance of a paper read before the Royal Society of Edinburgh in December 1843 and January 1844. (*See the Society's proceedings*, 1844, p. 443.)

IN March 1843 I saw, along with Professor Miller, a lad affected with congenital closure of the external passage of both ears, and imperfect development of the auricle, and in the course of the same year, I was so fortunate as to meet with two other instances of the same kind of deformity, even in a greater degree than in the case first mentioned. These cases appear to me deserving of notice, both on account of their nature considered as malformations by arrest of malformation, and from some circumstances with respect to the power of hearing without the assistance of the external and tympanic portions of the auditory apparatus, which the experiments performed upon the three individuals brought to light.¹

The malformation of the outer and middle portion of the organ of hearing does not appear to be of very rare occurrence. Several varieties of the affection have been described by authors, and a few have been examined by dissection, so that we are not altogether without the means of forming a probable conjecture as to the state of the deeper parts in the cases referred to in the present paper. A specimen of a temporal bone, presenting a very marked instance of this malformation, is preserved in the anatomical museum of the University, and has assisted me greatly in forming an opinion as to the exact seat and naturæ of the deformity.

Malformation of the external ear with absence or occlusion of the meatus on both sides, does not appear to cause total deafness, even when attended with considerable departure from the natural form and structure of the cavity of the tympanum: in the instances which I have seen, indeed, the deprivation of the power of hearing was not so great as may frequently occur from other causes of apparently a much slighter nature. This manifestly depends on the circumstance, that the malformations in question are rarely accompanied by any unnatural condition of the essential parts of the labyrinth, which are more immediately concerned in the reception of the sonorous impressions. In none of the three cases to be described, was the defect of hearing originally to such a degree as to induce dumbness. An example is recorded in which this was the case, but it may reasonably be supposed, that the malformation in this case affected the deeper as well as the middle and external parts of the auditory apparatus. The instances are extremely rare,

¹ Of these experiments some were performed in conjunction with Professors Forbes and Miller upon the lad first mentioned.

however, in which deaf-dumbness is caused by congenital malformation of any kind, and it is sufficiently well known to all those who have been connected with Institutions for the deaf and dumb, that in by far the greater number of instances of deafness, either total or to such a degree as to induce dumbness, the affection has proceeded from diseases in early life, such as scarlet fever, measles, and small-pox; the inflammatory and suppurative process affecting first the cavity of the tympanum, and being subsequently communicated to some part of the labyrinth. In some of the instances of deafness from congenital affection of the internal ear, dissection has brought to light various degrees of an abnormal condition of the whole labyrinth, or of some of its parts; such as total absence, incomplete canals or cochlea, closure of the meatus auditorius internus, small size, or absence of the auditory nerve, &c.

Congenital malformation may exist in any one of the three parts of the auditory apparatus, or in two, or in the whole of them at once. The external auricle is sometimes found deformed, while the meatus and tympanum appear natural; or the labyrinth may be deficient, with a perfect auricle, meatus, and tympanum; but in most instances, an imperfect condition of the tympanum and meatus is attended with malformation of the auricle—a circumstance which, it will afterwards appear, may proceed from these three portions of the apparatus being developed in the foetus from the same system of parts. One or both organs may be the seat of the malformation of the external ear; and the deeper the parts involved in the abnormal structure, there is the greater probability that both sides will be affected.

There appears to be no good reason for the opinion expressed by Itard, that the existence of the malformation of the ear is to be looked upon as a sign of the non-viability of a child at birth. In so far as this malformation, like others, is a sign of general weakness of the constitution, it may be considered as prejudicial; but it is not in itself a source of any danger; and a sufficient number of persons so affected have arrived at maturity in good health, to disprove the opinion now referred to.

I have now to direct the reader's attention to some particulars connected with each of the cases of malformation of the ear that have come under my notice.

The lad, W—— B——, was first seen by Professor Miller in 1841, when he was thirteen years old. Both he and his friends were most desirous that an attempt should be made, by a surgical operation, to open up the natural passage of the ear. This was scarcely necessary on account of the hearing, for that faculty was not by any means very imperfect.

Mr Miller learned that this boy had given the usual signs of hearing, and had begun to speak, as early as children usually do so; that he had gone to school at the ordinary age; and that, placed in the common class along with other boys, he was able

to follow what was said, and to become equally proficient with his fellows in the various elementary branches of education. He joined heartily in the amusements of his school-fellows, and did not appear in play to be inferior to the generality in sharpness or activity. He was also frequently employed by his father, who was a butcher, in going messages, and transacting little matters of business; all of which circumstances proved at once his intelligence, and an amount of the power of hearing not inferior to what might be called a dulness of the perception of sounds. In fact, his hearing was such, that by attention he could join in the conversation of those with whom he was intimate, and that even a stranger could communicate with him by employing slow, distinct, and somewhat loud articulation.

Mr Miller complied with the urgent wish of the lad and his friends, and made an incision in the natural seat of the opening of the meatus upon the right side, on which the auricle and cartilage appeared less imperfect than on the other. He found, however, all the substance exposed by this incision to be dense and imperforate, and nothing perceptible in the slightest degree resembling either a meatus or membrana tympani; and he was satisfied that the operation was futile on account of the wall of bone being complete in the whole vicinity of the ear. Neither did Mr Miller find that there was any difference in the lad's power of hearing whether the wound was open or closed; and he therefore allowed it to heal up.

When I afterwards saw this young man along with Mr Miller, I endeavoured to persuade him to allow me to pass a probe into the Eustachian tube, with a view to ascertain the condition of this passage, which it would be most desirable to know; but I could not overcome his objections to this operation.

With the exception of the very deficient state of development of the auricle, there was no other peculiarity to be remarked in the configuration of the features or head in this lad. His countenance was well formed, both in its upper and lower parts near the jaw, which was by no means the case in the other cases I have seen.

In April 1843, I visited at Falkirk along with Mr Girdwood of that place, and Dr Mercer, a young woman of about sixteen years of age, presenting the same kind of malformation to a greater extent than in W. B., and, along with the local malformation of the ear, considerable imperfection in the shape of the lower part of the face. The lower jaw was remarkably short, its position oblique, and its angle very obtuse; the malar bone was placed far back on the cheek, and the zygomatic arch much shorter than usual.

When this girl was about six years old, Dr Dewar of Dunfermline, attempted without success to remedy the defect by an operation on the right side. On making an incision through the integuments, he informs me, something like a membrana tympani was uncovered, and so long as the wound remained open, the girl heard

much more acutely than she had done previously ; but it was found impossible to keep the opening free during the process of healing, for the new granulations, in spite of all caustic applications, spread continually over the supposed *membrana tympani*, and finally closed up any passage that had been opened.

This girl was not the only one of her family that was so affected. Dr Mercer has shown me a cast of the head of an infant sister who died in childhood, presenting precisely the same malformation, and I was interested in perceiving that another sister in whom there was not any malformation of the ear, had the same peculiar form of countenance which I believe to be related to the imperfect development of some of the parts connected with the middle and external ear.

I am inclined to believe that in cases in which the external and middle parts of the auditory apparatus are imperfectly developed, there is a tendency to other malformations about the maxilla and palate. In both the cases already mentioned, there were marks of this tendency in the cleft palate, and deficiency or irregularity of the upper lateral incision teeth. In W. B. the cleft affected only the uvula, but it was to a greater extent in the girl at Falkirk.

This girl appeared to be possessed of only a moderate share of intelligence, partly from weakness, and partly from her imperfect hearing and consequent want of proper education. Her power of hearing was much less acute than that of the lad W. B., and her choice of language was somewhat limited. She understood, however, what was said to her when it was spoken slowly and distinctly, and she always answered by speech, though rather inarticulately. It ought to be mentioned that there was this marked difference between her case and that of the lad W. B., that she heard much less with the one ear than with the other, indeed she had scarcely any hearing on the side on which the operation had formerly been attempted.

In the third case I have to mention the amount of deafness was greater than in either of the two previous ones. This was Miss R., a lady of about forty-five years of age, residing in Edinburgh, who in her youth had been a pupil of the Institution for the Deaf and Dumb, and in whom, notwithstanding the advantages she there enjoyed from the instructions of the highly zealous and philanthropic Mr Kinniburgh, so well known in connexion with the education of the deaf and dumb, a great defect of language and actual experiment indicated a very imperfect state of the auditory apparatus and power of hearing. In this lady, however, as in the lad W. B., the hearing, such as it was, appeared to be equal on the two sides.

The form of the imperfectly developed auricles, and the shape of the countenance, presented a remarkable similarity to those of the girl at Falkirk. The malar bone was thrown so high and far back on the side of the cheek, that the zygomatic arch appeared entirely wanting : the auditory process of the temporal bone could not be felt by the finger ; and on the left side particularly, the

articular tubercle seemed absent, so that the head of the lower jaw was allowed to project considerably on the cheek.

The sounds of the voice and speech were thick and nasal, and led me at first to suppose that a cleft condition of the palate would be found, as in the other cases; but on inspection the uvula and palate were observed to be quite entire. There existed, however, a remarkable shortness of the vault of the palate from before backwards, which appeared to me sufficient to account for the peculiarity of voice and speech, resembling, in a great degree, that of persons affected with cleft palate.

The same shortness enabled me to perceive the openings of the Eustachian tubes.

In her youth this lady had been taken to London in order to undergo an operation by Sir Astley Cooper, for the removal of the defect; but entirely without any good results, as no meatus could be found by incision: and I understand that another attempt of a similar kind, made at a later period in Edinburgh, was equally unsuccessful.

The result of experience, in all the cases now mentioned, is decidedly opposed to the propriety of attempting to cure them by surgical operation. All that is known from dissection of other cases, proving the entire absence of the meatus, would lead to the conclusion that no benefit is to be expected from this mode of treatment: and I feel persuaded that it should not be resorted to, unless there are good grounds for believing the meatus to be present, and its closure to be caused by malformation of the integumental part or auricle alone: but I do not believe such to have been the state of the parts in two at least of the cases I have described. Even in the girl at Falkirk, in whom Dr Dewar thought "*some-like a membrana tympani*" was exposed by the operation, it was found impossible to keep this structure free during the process of healing. This difficulty was as fully shown in another case of a similar kind which Dr Dewar had met with, and which he was so kind as to communicate to me at the time when I requested him to furnish me with information respecting the girl at Falkirk. In a boy, ten years of age, Dr Dewar observed "the external ears quite deformed, and the meatus completely closed." This boy heard better in one ear than in the other, and the case appeared to Dr Dewar to be one susceptible of improvement from operation, had not the same causes, as in the other case, interfered to prevent its ultimate success. Dr Dewar removed a portion of the integument from the natural situation of the meatus, and uncovered "a structure which bore some resemblance to the drum of the ear." The hearing was now manifestly improved; the boy started and seemed alarmed at sounds which previously had passed unnoticed by him: but the growth of granulations, and more especially the tendency which the edges of the divided skin had to approach each other, rendered the operation of no permanent avail. Dr Dewar destroyed

these granulations with caustics, actual and potential, but no method, he states, occurred to him at the time of effectually repressing the tendency to reunion; and the patient was afterwards lost sight of.

I know only of two dissections of the deeper parts in cases similar to those now under consideration. One of these is described by Professor Jaeger, of Erlangen; the other, which has not, so far as I am aware, been described, is preserved in the Anatomical Museum of the University of Edinburgh. In both of these examples, the malformation affected one side only, and there is a remarkable similarity in the condition of the temporal bone. In both, the labyrinth appears to be quite naturally formed: the cavity of the tympanum and the bony Eustachian canal exist, but are much smaller than usual: the chain of ossicula differs materially from the natural structure; being united, in one of the examples, into one straight and simple piece, and consequently assuming very much the form and appearance of the columella of birds or reptiles. The most striking departure from the normal form of the bone, consists in the entire obliteration of the meatus externus, which seems to be connected with the absence of that portion of the temporal bone which forms the tympanic ring and lower side of the bony canal of the meatus, and the extension backwards of the articular or true glenoid portion of the temporal bone to twice its natural breadth. There is a total deficiency, therefore, of what may be termed the tympanic bone, or of that which forms the posterior non-articular part of the glenoid cavity of the temporal bone, intervening between the fissure of Glaser, and the vaginal ridge of the styloid process. Were this part of the bone merely deficient, the cavity of the tympanum would be left freely open below; but, in the two bones now described, it seems to be closed by the unusual extension of the glenoid or articular portion of the bone backwards.

In reviewing the cases before us, and comparing them with the results of dissection now stated, the following appear to be the most prominent points of deviation from the natural form and structure:—*1st*, An incomplete development of the integumental part of the apparatus, viz. the external auricle and outer part of the meatus. *2d*, The absence of *membrana tympani*, tympanic ring, and bony part of the meatus, in consequence of the incomplete development of the tympanic bone, or a part of the structure which, in the lower animals, bears that name.¹ *3d*, The defective state of the cavity of the tympanum and chain of small bones. *4th*, Occasional irregularity or deficiency in the development of the malar, palatal, and maxillary portions of the face.

(To be continued.)

¹ I cannot pretend to decide as to whether this may be the state of the parts in the case of the girl at Falkirk. Some doubt may be entertained as to the existence of a *membrana tympani*, &c. in her, notwithstanding Dr Dewar's observations.

Part Second.

REVIEWS.

On the Pathology and Treatment of Scrofula; being the Fothergillian Prize Essay for 1846. By ROBERT MORTIMER GLOVER, M.D., Lecturer on Materia Medica in the Newcastle Medical School. London: John Churchill. 1846. Pp. 315. Plates.

WE have no hesitation in pronouncing this work to be one of the best which has lately appeared on the important subject of which it treats. It is conceived in the true spirit of rational medicine; it is based upon observation and experiment; it has nothing to do with fallacious statistical data, and the subject is sought to be investigated in the only legitimate manner, namely, by anatomical, chemical, and clinical researches. The following passage in the introduction at once prepossessed us in favour of the book, and prepared us for the valuable observations which follow:—

“The great difficulty to be contended with in medicine is the obscurity in which the connection of observed facts is veiled. Hence the great value of anything approaching to experiment. The function of experiment must be distinguished from that of mere observation: experiment has in view the nature of the connection between ascertained or observed facts, in order to test the constancy and essentiality of their relation; in other words, it is the bringing out of what Bacon terms prerogative facts. For instance, iodine is a remedy supposed capable of producing the absorption of scrofulous tumours. But a mere case in which a scrofulous person recovers under the use of iodine is of most moderate value; for patients have got rid of scrofula, while submitted to every form of treatment as proposed by generation after generation of so-called *practical men*; and remedy after remedy, thus used with apparent success, has fallen into oblivion. Suppose we were able to show that the use of iodine promotes not merely the flow of the urine, but also an increase of the solid contents in this fluid, and especially of the amount of urea? In other words, iodine excites the secondary digestion of the tissues; and as urea is the product of the albuminous tissues thus converted, and tubercle is composed chiefly of albumen, we learn that the connection between the giving of the remedy and the absorption of a scrofulous tumour is not accidental, and thus we may derive a confidence which the blind empiricism, so absurdly denominated *practical*, could never properly give. The sequel will prove that there is no wish here to undervalue observation of any kind; it is only intended to put prominently forward the great value of rationalism in medicine; and the reflections just written have been dictated by a review of the numerous failures in generalisation presented by the history of the medical literature of scrofula—failures which have chiefly arisen from too hastily grasping at the sequence and relationship of facts, without a sufficient consideration whether the connection observed was essential and constant, or merely accidental.”—P. 6, *et seq.*

Dr Glover has divided his work into two parts—1st, the pathology, and 2d, the treatment of scrofula. Each of these parts is subdivided into chapters, and we shall now proceed to give an analysis of each *seriatim*. As we have already stated our views regarding the general excellence of the work, we trust that the author will not consider us as in any way disparaging his labours, should we venture occasionally to differ with him in opinion, and to criticise rather closely some of his statements.

In the first chapter Dr Glover describes the structure and chemical composition of scrofulous or tuberculous matter, which he understands to be a peculiar morbid formation, the product of a particular modification of the inflammatory process. Tubercle is a term which includes all scrofulous formations, in whatever tissue or organ they may be found. He agrees with Lugol in considering scrofula—that is, the actual process of disease—to be always revealed by the development of tubercles; and thinks, with Barthez and Rilliet, that the distinction said to exist between scrofula and tubercle is useless, if not incorrect. He believes that tubercles and scrofulous matter are not essentially vascular in their ultimate stage of conversion, but says that scrofulous glands at an early stage can be injected. No one, we presume, has ever denied the possibility of this; but, then, it is not the vessels of tubercle, but of the glandular structure, which are injected. After quoting the observations of Canstatt, Guillot, and others, the author concludes that the vascularity of tubercle is a non-essential phenomenon. We think he might have said more plainly, that tubercle is never vascular, although tubercular glands are. We presume this is what he means, when he says subsequently, that tubercle itself is *beyond the normal influence of the circulation*—an expression he has placed in italics, and in which we can in no way agree. He calls this a fact, and says it is confirmed by the results of microscopic examination. But it does not follow that although tubercle be non-vascular, it should therefore be beyond the *influence* of the circulation. Far from it, for tubercle is capable of being affected by the admixture of serous effusion, or liquid plasma exuded from the blood-vessels, and, when reduced to a molecular condition, of being also absorbed through their agency.

As regards the minute structure of tubercle, the author says that he agrees generally with Dr Lebert and Dr Hughes Bennett, according to whom, corpuscles of an irregular angular form, varying in diameter from 1-200dth to 1-300dth of a line, constitute the characteristic element of this substance. He believes that Lebert has mistaken the minute granules which are scattered both between the spaces occupied by the larger corpuscles, and over the larger corpuscles, as component parts of the latter. We beg to assure Dr Glover, however, that Lebert has done nothing of the kind, and that his description of these corpuscles is singularly true to nature. That the granules are really contained within the cell

wall may be at once made apparent by adding water, and seeing them roll round in the fluid.

Dr Glover confirms the observations of other histologists, who have found tubercle in all its forms, and taken from various tissues and organs, to be identical in structure. He agrees with them also in the idea, that the tubercle corpuscles are cells which are not fully developed, owing to a want of formative power in the scrofulous deposit.

The present state of science renders it of all things important to ascertain the exact chemical composition of tubercle and other morbid productions. Of this Dr Glover seems to have been well aware; for we find that the section on this subject not only contains a lucid account of all that has been done in this field of inquiry, but that it is enriched by thirteen laborious and careful analyses of various kinds of tubercle. For the details of these proximate and ultimate analyses we must refer to the book itself. The following are the general conclusions arrived at:—

“1st, The results of the chemical analysis of tubercle and its after products, of scrofulous bones, &c., although they may not as yet warrant very decisive conclusions, yet furnish some useful information, which will be found to bear upon the pathological propositions advanced concerning the essential nature of scrofulous and tubercular affections.

“Thus the large quantity of fat and extractive matters in tubercle, has a direct bearing upon the theory supported by many of the advocates of the use of cod liver oil in the treatment of these diseases. The existence of pyin is important, and could we be sure of that of caseine in quantity, we might to a certain extent explain the unorganizability of tubercle. But we have never been able to satisfy ourselves that the proteine constituent of tubercle, as examined by us, approaches much nearer to caseine, than to albumen. Nevertheless, the remarks of Preuss, Boudet, Scheerer, and others, must be held decisive of the existence, at least in some cases, of caseine; although the last named observer is far from confirming former writers in the statement of a large proportion of tubercle matter being composed of this substance. We have made other examinations for caseine than those recorded, and have never been able to detect its presence. Whoever considers the very doubtful power of the tests which we possess for distinguishing these different substances in the animal body, will be very doubtful of the precise nature of the proteine basis of tubercle. Nevertheless, we may perhaps conclude, that there is great probability of this proteine compound having a certain approach to caseine, or at least of a portion of it, exhibiting a tendency to take on the characters of this latter substance.

“2d, The ultimate analyses which have been made, can lead to no very definite conclusion, although Scheerer infers, from a comparison of his formulæ of lung and liver tubercle, that the difference which exists between them may arise from the substance in the latter situation being less exposed to the air. Thus he says, making the azote the fixed quantity, we have

The lung tubercle, $C_{43} H_{70} N_{12} O_{13}$

The liver tubercle, $C_{45} H_{72} N_{12} O_{13}$

showing an excess of carbon and hydrogen.

“Our analyses would give to the proteine compound of tubercle a much smaller per centage of azote in general, than those of Scheerer; only 12·31 in the first analysis of mesenteric tubercle, while the proportions of carbon and hydrogen show that the substance had been completely freed from fat. But when we find analyses of normal proteine, differing almost as much from the

ordinary standard, what inference can we draw? Since we wrote as above, Liebig has called in question the proteine theory, but the use of the word *proteine*, in this essay, is not hypothetical; it is used to signify a basis of an albuminous, or perhaps, partly caseous nature, which undoubtedly is at the bottom of the constitution of the greater portion of tubercle.

"It does not, however, follow that these ultimate analyses are useless, because we cannot at present draw many inferences from them. We see, at least, the close approximation which they enable us to make between the basis of these morbid formations and proteine compounds.

"3d, The analyses of the concretions which we have made, does not bear out in the least the statement of M. Boudet, which makes these bodies contain 70 per cent. of soluble salts. On the contrary, even in the tubercle, which may be supposed to form a transition stage, on the way towards the conversion into the calcareous substance, we find only about one-third of the ash composed of soluble salts; and in the perfect concretion there was merely a fraction of these substances. In this respect, our results agree with those of Scheerer and Mulder.

"A doubt has arisen whether these concretions should be regarded as the remains of absorbed tubercle; and this doubt is supported by Rayer, who maintains them to be oftener the residue of pus. The presence of these concretions may not improbably serve to attract towards them, once formed, more osseous matter.

4th, The analysis of scrofulous bones requires no comment.

5th, Scrofulous pus appears to differ from ordinary pus, chiefly in the fluid part being thinner and mixed with albuminous granules, proceeding from a decomposition of scrofulous or tubercular matter. The pus globules appear also, as stated by Mr Gulliver, to be fewer and less distinct than those of healthy pus; we have found them also more irregular in their form."—Pp. 86-90.

We must confess, that we are in no small degree disappointed at the unsatisfactory conclusions to which Dr Glover's laborious researches have led. None but those who have engaged in such observations can form an idea of the time, labour, and care which are necessary to complete them. Yet the thirteen accurate analyses, added by Dr Glover to those previously made by Simon, Scheerer, and others, do not seem to have extended materially our knowledge of the nature of tubercle. This, we are satisfied, is owing to no want of labour and accuracy on the part of the author, but rather to the difficulties inherent in the subject, and to the present imperfect state of organic analysis. Fully agreeing, as we do, with Dr Glover, in thinking that tubercle is an exudation from the blood vessels, and therefore a form of inflammation, the question presses upon us, what constitutes the difference between a tubercular and an inflammatory exudation? Why in the one should we have imperfect, and in the other perfect cells? Why is the progress of the one slow, of the other rapid; and why is the one so seldom and the other so frequently amenable to rational treatment? Again, in what does tubercle differ from a cancerous exudation, which is even more incurable; and yet, instead of presenting miserable broken down cells, furnishes the most perfect and beautiful corpuscles which the animal tissues can furnish? These are mysteries which we have always hoped that organic chemistry would one day explain; and we yet anticipate, that as science advances, some labourer, following the footsteps of our author, will earn undying reputation by their solution.

Not satisfied, however, with experimentally investigating into the chemical composition of tubercle itself, our author has extended his researches to the blood and urine of scrofulous and tubercular individuals. The results he has embodied in the second chapter, under the head of humoral pathology of scrofula.

Dr Glover acknowledges, that the methods hitherto pursued of analysing the blood are faulty. He has adopted the method of Andral and Gavarret; not because it is absolutely correct, but because it serves the purpose of comparison.

“Had Simon, or some other observer, given us tables of the composition of healthy blood sufficient to serve our purpose, another method than that referred to, might have been, and with advantage, adopted; but we cannot compare results obtained in another way with the results of the method of the French observers.”—P. 99.

If the method of analysis adopted by Andral and Gavarret be faulty, as we believe it is, we regret that Dr Glover should have adopted it, however important it may be to obtain a standard of comparison. By such a proceeding, science can never hope to proceed in a right direction. It does not follow that because the first step taken has been wrong, that we should make other false steps, with our eyes wide open to the errors of the path we are pursuing. We would rather have had made accurate analysis of the blood in cases of scrofula, and left to other and later chemists the task of comparison, than receive vitiated results from the adoption of a faulty process.

The author, with a pains that deserves all praise, has determined the amount of water, solids, fibrine, solids of serum, both organic, and mineral, and blood globules, in eighteen cases. The following are the general results:—

“According to Becquerel and Rodier, the proportion of water in the blood of females is 791·1, that of blood globules, 127·2; the fibrine is the same as in the blood of males; the solids of the serum are 79·5, of which 7·695 are salts; the fats are 1·620; and the extractive matters, with their salts, 7·4. In the analyses above given, in only one instance do the blood globules approach very near the normal standard, *i. e.* in case 18. This was a case, however, in which the scrofulous affection was slight, and, if we make abstraction of the old disease, of recent appearance. Perhaps a more decided illustration of genuine struma than case 12 could scarcely be found; and, accordingly, we find considerable diminution of the blood globules, with a greatly increased quantity of solids of the serum. The salts are throughout nearly normal, oftener below the standard than above it. The fats were only examined in No. 15, and then were found rather below the standard. The fibrine was generally above the standard given by Becquerel and Rodier. The great diminution of the blood globules, in the case of goitre, was remarkable, not being accompanied by any very apparent emaciation. The solids of the serum, above the healthy standard in five of the cases, were below it in the remaining number.” “In women the means will be, excluding the goitre case, solids, 203·845; fibrine, 3·585; solids of serum, 85·28; globules, 114·88.”—Pp. 113, 114.

These analyses, therefore, are in favour of the opinion, that in scrofula the blood contains an excess of albumen, with a diminution of the red globules. Dr Glover also says, that so far as the analyses

go, the fats are not deficient in the blood; but we cannot understand how this statement can be borne out by the facts recorded. The quantity of fats in the blood was only ascertained in one case, and then, according to the author, they were rather below the normal standard. Yet, insufficient as one analysis must be to decide such a question, even supposing the fat was in excess rather than as it actually was—diminished in the blood, he seizes the opportunity of stating that the well-known theory of Ascherson is incorrect. We can discover no facts advanced by the author to show this. It is true he observes that this theory is “too mechanical, and vitiates itself by giving a too easy explanation of great difficulties” (p. 116); but we do not know where the line is to be drawn between mechanical and vital explanations of phenomena occurring in the body; and we are far from thinking that a theory, because it is easy and simple, is therefore objectionable. We do not maintain that the doctrine of Ascherson is correct, as he promulgated it, although we feel satisfied that it contains the germs of truth. Assuredly it cannot be reasonably set aside by the author’s facts, and still less by his arguments.

Dr Glover, however, argues that—

“We find a large portion of fats in tubercles: in one analysis, conducted on a sufficient scale, almost one-fourth of the tubercular matter was found composed of fats! And this result is not much in discordance with other analyses, and with analyses by other persons. If, then, the diseased matter be expelled by a supposed effort of the *vis medicatrix*, it would appear as if the sanative materials were also expelled.”—P. 115. “Again, we by no means find a uniform deficiency of fat in scrofulous persons. We have two females (sisters) now under our care, thoroughly scrofulous. One sister was treated by us a year ago for scrofula of the neck; symptoms of phthisis came on; the scrofulous glands disappeared, but the phthisical symptoms continued. The other sister has now scrofula of the neck, and is the case referred to in No. 18 of the analyses just given. Both sisters were plump, and the latter aged nineteen, weighs a pound less than nine stones, being five feet four and a half inches high. We remember examining the leg of the person referred to in analysis 14 of the preceding, with our friend Mr Potter, who had removed the limb, and we were both struck with the large quantity of firm fat beneath the skin. This person had been almost constantly confined to bed for nine months; and the leg was removed in consequence of the discharge of blood which daily took place from a diseased surface; yet there was no deficiency of fat. Some have asserted that the fat in scrofula is different from ordinary healthy fat, but this is probably the most pure conjecture. When the disease has continued long, we must, of course, in general expect deficiency of fat; but this characteristic of chronic diseases seems rather absent than present in scrofula.”—Pp. 115, 117.

To these arguments we think it may be fairly opposed, that the existence of a certain quantity of fat in tubercle, proves nothing. Fat exists in every organized tissue and product, and according to the theory of Ascherson himself, tubercle could not present the imperfect organization it does, unless it contained this element. The question ought to be, is there a greater or less amount of fat in tubercle than in lymph, pus, cancer, or other exudation? It is not whether fatty matters be present, but whether they are in suffi-

cient quantity to constitute perfect formations. We know of no analyses sufficiently extensive to decide this point. Again, those who are favourable to the views of Ascherson, are well aware that scrofula is often present in plump persons. Thus Dr Hughes Bennett, who was the first to make these opinions known in this country, and to whose work the author more than once alludes, describes two forms of scrofula. In the one he states the individuals are fat and well nourished, in the other are thin and cachectic. He further points out that cod liver oil is not adapted to the first class, and that experience has shown that it is in the latter its good effects have been best exhibited; healthy local accumulations of fat whether in the leg, or in the liver, prove nothing as to the existence of a proper proportion of this principle in the chyle or blood, so as to enable the latter to form the tissues, and a simple inflammatory exudation.

In pursuance of this line of argument, the author does not agree with many German writers when they say the stomach is commonly deranged in scrofula, and that there is unusual acidity of the *primæ viæ*. But here he deals in nothing but assertion, whilst we will undertake to say that no accurate observer of the course of the disease will fail to be struck with the remarkable derangement of the digestive powers which accompanies it from first to last.

Dr Glover has made several analyses of the urine, one in nine cases which came under his observation. He has not, however, favoured us with any results derived from these investigations. In two of the cases in which the urine was analysed before and after the commencement of a treatment by iodine, it was ascertained that the amount of urea was greatly augmented in the latter analyses. If iodine really have the effect of increasing the amount of urea, and the secondary digestion of the tissues, which from previous observations of the author we gather to be his opinion, we must consider it a very important fact. This subject, however, is more fully discussed in the second part of the work.

The third chapter is on the scrofulous diathesis, in which the author states his belief that the only positive sign of scrofula is the existence of tubercle, and that there is no necessary connection between tubercular diseases and a peculiar *habitus* or *facies*. In this opinion we entirely concur.

We pass over the fourth chapter on the comparative pathology of scrofula, in order to arrive at the fifth, which treats of the identity of scrofulous and tubercular diseases. Here the author expresses his conviction of the essential resemblance of both diseased processes. He shows that microscopic examination and chemical analysis fail to distinguish any difference between tubercular and scrofulous deposits, and ably combats the arguments advanced in support of the opposite doctrine.

The sixth chapter is on the essential nature of scrofula, and the following is the author's view of the subject:—

"Scrofula is (speaking of the actually diseased process, not of the diathesis which has been elsewhere described) a peculiar modification of inflammation, whereby the usual, or, as they may be termed, the normal products of this process are not evolved, but instead of them other materials, incapable of passing into the regular cell forms, and which constitute the substance already described, under the name of scrofulous or tuberculous matter. The peculiarity of this formation, and the continuance of the scrofulous diathesis, are the causes of the characters assumed by the various after processes which result from the existence of tubercle."

Although this view of the nature of scrofula does not present us with anything new, we believe it to be essentially correct. Indeed we believe that this chapter presents us with one of the best accounts of the pathology of scrofula which has been published, and we strongly recommend its careful perusal to our readers.

Passing over chapters seventh and eighth, on the etiology and complications of scrofula, we arrive at the second part of the work, in which the treatment of scrofula is considered. The subject is introduced by some very judicious observations on the general principles which should guide the treatment. In most of these we perfectly agree, especially in the repudiation of the absurd proposition of M. Lugol, namely, the legal prohibition of marriage in the case of scrofulous people. The author, however, again seizes the opportunity of denying that the symptoms are in any way to be ascribed to a deranged digestion, and once more opposes the theory of Ascherson, on the sole ground that it is "too mechanical." As we have already endeavoured to show that the author's opinions on this subject are not founded on fact, we need not again attempt to show their fallacy. He observes that "the action of cod liver oil is, in all probability, as a tonic, from the resinous principle which it contains." (p. 243.) This doctrine was maintained by Falker in 1840, but we do not think that it is at all likely to be the true one.

In chapter tenth, Dr Glover treats of various remedies which have been used in scrofula. These we shall notice in the order he has placed them.

Digitalis, Walnut Leaves, Vegetable Tonics.—Although the diuretic properties of digitalis may be useful in scrofula, Dr Glover correctly states that its use is combined with so many inconveniences as to justify its abandonment. He regards the evidence adduced by M. Negrier, in support of the virtues of walnut leaves, as of very doubtful character. The treatment was, in many of the cases, of such long duration, and the *apparent* physiological operations of the remedy so obscure, that he does not believe it a substance of any great power. There is scarcely a vegetable tonic which may not be used in scrofula, but he considers this class of remedies most useful in the intervals of the iodine treatment.

Chlorine, Bromine, Iodine.—The author points out that there is a strong analogy between the physiological and medicinal proper-

ties of chlorine, bromine, and iodine, but that the different forms in which we are obliged to use them, give rise to difference in action. Thus iodine being only slightly soluble cannot be used in solution, whereas the convenience with which solutions of bromine can be prepared, renders this body peculiarly adapted to form lotions for external application. It forms an easily prepared, elegant, and cleanly lotion; 8 or 12 minims of bromine being used to a pint, half a pint, or 8 oz. of water. Reasoning analogically, and from experiments on animals, the author thinks it probable that chlorine is the most active, bromine the next, and iodine the least potent physiologically. Of the therapeutic effects of chlorine in scrofula, however, he says nothing, and it is only stated of bromine, that the lotion just noticed has been found useful as an external application.

With respect to iodine, Dr Glover observes—

“Great discussion has arisen as to whether iodine should be given in small or in large doses. Baudelocque, Lugol, and Tyler Smith support the administration of small doses, while Dr Buchanan has been the chief advocate of the system of large doses. But, in fact, scarcely any one administers the iodine pure in one way or another. It is the iodurated solution of the hydriodate of potass, or the compound iodine tincture, which is always given. We prefer a medium system. We always give iodine in the form of the compound tincture of the London College, or a simple solution of hydriodate of potass. We commence with adults, by giving 25 drops of the compound tincture thrice a-day, which we augment gradually to 30 or 40 drops if the patient can bear it; but in general, when the dose becomes above 35 drops, nausea, pains in the stomach, and sometimes vomiting and purging are occasioned, in which case the dose is immediately reduced. When the patient can bear a good dose without the remedy disagreeing with him, in the way of its primary action, we do not find any inconvenience from its secondary symptoms; but we do not give iodine in a very cachectic habit, preferring in such cases the use of iodide of potassium alone, or the syrup of the iodide of iron, or cod liver oil.

“The compound tincture of iodine, given in this way, improves the appetite, acts as a general tonic, and increases powerfully the quantity of urine, and also, according to our experiments, the amount of solids and of urea. Some of the facts already recorded in the second chapter will support these conclusions. All authorities agree with regard to the increase of urine, and the existence of iodine in this fluid in a combined form, when the element or any of its compounds is given internally.”—Pp. 251-3.

Dr Glover now describes the results of a series of observations made on the chemical constituents of the urine, in an individual aged twenty-four, extremely healthy, and regular in all his habits. Analyses are given of the urine both before and after taking iodine; but on comparing these, we cannot observe that the data agree with the author's conclusions, either as regards the solids or the urea. Thus, in the three analyses made before the iodine treatment, the solids amounted on the first, second, and third days respectively to 52, 34, and 50·5 grains; and the urea to 13·50, 9·50, 14·30 grains. The two analyses made after the iodine treatment give 46 and 48·4 grains of solids, and 13·40 and 18·00 of urea. Here, then, the solids cannot be said to be augmented, although

the urea is but in the last analysis only. Dr Glover himself in this place tells us that "further investigation of the subject is very desirable, and may possibly show that this action on the urine is not always an accompaniment of the use of iodine. Indeed, the substance will not produce the same effects on all individuals," &c.—(p. 256). A close analysis of the author's facts, therefore, does not in any way satisfy us that his favourite theory regarding the action of iodine is established. Besides, if the good effects of iodine in scrofula are dependent upon its power of increasing the discharge of urea, other medicines, as colchicum, for example, which possess this property in a high degree, ought also to be beneficial in this disease.

The author concludes his observations on this subject with the following theoretical remarks, concerning which our readers will, from what we have said, be able to make their own comments:—

"When we consider the probable connexion of the secondary digestion of the tissues of which the principles of the urine were the chief results, with the state of the blood and the respiration, we may understand the important part, which the use of a remedy like iodine may play in the treatment of such a disease as scrofula: 1st. In quickening the powers of absorption and getting rid of the effused albumen, where this is not in such a form as to preclude all action of the kind; and, 2d, in removing the excess of albuminous substance in the blood. Again, we deem it by no means an improbable supposition that the chief seats of the formation of urea, may be in the lymphatic glands of the general system. This substance is not formed in the kidneys, as we know by the experiment of Prevost and Dumas. Now, is it not very probable that the lymphatic glands may play such a part on fluids absorbed from the digestion of the tissues, as there is reason to attribute to those of the mesentery and others in the course of the chyle, upon this fluid?"—P. 257.

Alkaline and Earthy Oxides and Salts.—The following observations are valuable in a practical point of view.

"The chloride of potassium is not used, so far as we are aware, in the treatment of scrofula; but might, in all probability, be given now, with advantage, when the iodide is so dear. The experiments, which we formerly published, prove this substance to be much more energetic than the corresponding compound of sodium, although not in accordance with the terms of our general law, so powerful as the iodide of potassium. There is scarcely a doubt but that the chlorides, bromides, and iodides of the same basis produce effects most identically similar in kind, differing only in degree.

"The bromide of potassium is, in accordance with the same law, more powerful than the chloride, less active than the iodide. Not being so apt to occasion nausea as the latter substance, it may be used in cases where this might disagree; and our researches show with similar physiological and medicinal effects. As far as our observations, made since the publication of the paper referred to, have gone, they corroborate these former remarks.

"The iodide is, as far as our inquiries go, best given in doses of three or four to eight grains, in solution, three times a day to adults. We generally begin by dissolving a drachm in solution, in 8 oz. of water; sometimes we dissolve four scruples, or five or six scruples in the same quantity of water; and give a tablespoonful of the solution thrice a day: cases occur in which the hydriodate of potass can be borne where the compound tincture disagrees.

"The effects of hydriodate of potass are principally manifested, 1st, as a

tonic; 2d, by increasing the quantity of urine; 3d, sometimes by acting as a purgative. An increased tendency to perspire, is also a common symptom, as with the iodine itself. The salt is readily absorbed, and may be detected in the various excretions, by the well-known test for iodine. It is, probably, as has been already stated, partially decomposed in the system."—Pp. 259-260.

The author further observes that the same general law warrants the belief, that chloride of sodium possesses nearly the same properties as the iodide of potassium. In many mineral waters found beneficial in scrofula, the active ingredient is, in all probability, the common salt which exists in large quantity.

Metallic Preparations.—As regards antimony, Dr Glover tells us that he has obtained beneficial results in the treatment of impetigo, in scrofulous subjects, by combining the exhibition of mercury and antimony. His general plan is to give three grains of the hydrarg. c. creta, along with five or six of the golden sulphuret of antimony twice a day.

Of the preparations of mercury, the author enumerates a long list as being beneficial to scrofula. The bromide, he says, may be used with success, giving it in small doses, precisely as if it were corrosive sublimate.

Of the preparations of iron, he considers the iodide the best, which should always be given in the form of the syrup. It is particularly indicated in cases where the menstruation is defective.

Sea Bathing, Mineral Waters, &c.—The admitted use of sea bathing in scrofula, our author attributes to the stimulation of the skin and the circulation. He says further on, that the internal use of sea water is not unlikely to be as capable of curing scrofula as almost any of our therapeutic means. He justly ridicules the idea of the minute quantities of bromine and iodine found in certain mineral springs, having any importance attached to them, and denies the possibility of their existing in them in a free state. He concludes this section, however, by recommending the use of sea bathing and mineral waters, should the circumstances of the patient admit of such means, with which ordinary medicinal treatment may, of course, be combined.

Cod Liver Oil.—Dr Glover observes, that the chief precaution to be employed in selecting the remedy for use, seems to be to take care that the specimen has not been made from stinking livers, or that it is not the common cod oil which is used by curriers, and is made from the refuse of the cod generally. The oil he employed had a fine briny odour, and was taken by several patients without inconvenience, although others rejected it. When taken internally, no odour can be perceived in the secretions and excretions; and in one case in which the urine was analysed during its use, a quantity of oil was obtained from that fluid. He recommends its employment in cachectic cases of scrofula, both because he has seen its good effects, and because its use is now a fair subject of experiment, for which the treatment of this disease frequently furnishes a legitimate field. He adds, in a note, that

patients who take cod liver oil, almost invariably get stouter under its use. On weighing phthisical patients and others who were taking it from time to time, they were sometimes found to grow stouter, even where the disease was unchecked.

We have only one remark to make on this otherwise valuable chapter, namely, that Dr Glover does not sufficiently indicate the class or kind of cases which demand one remedy in preference to another, and that in consequence we have no guide to the application of many of the preparations he has spoken of. This fault, however, is in a great measure counteracted by the details of twenty-three separate cases, which constitute an appendix to the work. Many of these are very valuable in a practical point of view, more especially in reference to the indications which should lead us to the respective administration of iodine and cod liver oil.

The work is illustrated by four plates. Plate 1 represents the appearance of tubercle as seen under the microscope. We have no doubt that these are exact copies of the demonstrations which the artist was directed to draw, but unfortunately not one of them can be considered as exhibiting the characteristic structure of tubercular matter. They represent rather the appearance of broken down or granular tubercle, than of the corpuscles it contains. Fig. 3, representing a slice of lung-tubercle, magnified four hundred times might represent any coagulated albuminous matter, whereas the magnifying power employed in the other demonstrations not being stated, leaves us in doubt whether we have to do with corpuscles as seen under a low, or granules as seen under a high, power. The remaining plates appear to us unnecessary, although the fourth represents a very characteristic specimen of scrofulous disease of the ankle joint, which is admirably executed.

Notwithstanding we have ventured here and there to question some of the author's opinions, we cannot conclude without expressing the great satisfaction we have obtained from its perusal. It is the publication of monographs of this character that tends to the advancement of medicine, and the one we have now noticed, is in itself sufficient to confer honour upon the institution of the Fothergillian medal. We confidently recommend it to the perusal of our readers.

Quarantine and the Plague, being a Summary of the Report on these subjects recently addressed to the Royal Academy of Medicine in France, with Introductory Observations, extracts from Parliamentary Correspondence and Notes. By GAVIN MILROY, M.D., &c. London, Highley. 8vo, 1846. Pp. 71.

For several years past the conviction of the non-contagious nature of plague has been gaining force and extension; the quarantine

laws have in consequence become more and more oppressive, and the loud complaints of those engaged in commerce, have at length succeeded in rousing from their apathy, the governments of France and England, and directing their attention to the mighty interests involved in this great medical question. In 1844 the government of France, with that enlightened spirit which pervades all its scientific proceedings, called upon the national academy of medicine to direct its attention to this matter. In the August of that year accordingly, a commission composed of twelve men of the highest scientific attainments, was appointed to examine all the varied questions connected with the plague and with quarantines. The report was read in March and May of the present year, and constitutes a work of which the medical profession in France may be well proud. It is rich in facts and data, admirably digested under distinct heads, and contains several conclusions which have been discussed at nine sittings of the academy. The British government, on the other hand, contented itself with despatching Sir William Pym, inspector of quarantines, to the various lazarettos in the Mediterranean to obtain information upon every subject connected with them. It is not to be expected that the researches of one individual, could be undertaken with that freedom from prejudice, and with that acuteness, which was to be expected from a body composed of twelve scientific persons. Certain it is, that the English report will not bear the slightest comparison with the French one. Indeed, Sir William Pym commenced his inquiries apparently with his mind made up as to the contagiousness of the disease, whereas the French commissioners examined into the truth of this fundamental point, and have recorded facts, which to our mind, constitute sufficient proof that this ancient opinion is a mere delusion.

It must be evident that there are three important questions to be decided in connexion with this subject. 1. Is plague contagious, in other words, is the disease capable of being communicated by contact? 2. Is it infectious, that is susceptible of producing from the body an effluvia or miasm, which being diffused in the atmosphere, and inhaled into the lungs of other individuals, occasions the disease? and lastly, How are its extensive ravages to be explained, and what is its real origin? There are many other minor points and considerations well worthy of investigation, but it is to the three leading questions just noticed, that we shall for the present confine our attention.

The following are facts which we think are sufficiently positive and exact, to enable us to answer the first question in the negative,—and first, with regard to inoculation—

“ It should be noted as an important fact that, if all the diseases which are indubitably *contagious*—Small-pox, Hydrophobia, Glanders, and Syphilis, for example—present us with a palpable liquid which contains the poisonous principle, such is certainly not the case with the plague. Hence the medical men

have operated, by turns and almost indifferently, with the pus of a bubo, the serosity of a carbuncle, or even with the blood itself of a pest-patient. In 1835 the effects of inoculation were tested at the Cairo Hospital, in the presence of Gaetani-Bey, Clot-Bey, and Drs Lacheze and Bulard. Five criminals, who had been condemned to death, were the subjects of the experiments. A lancet, wetted with the blood drawn from a pest-patient, was passed under the epidermis on the inside of the arm of one of these criminals, at two different points. On the third day afterwards, the man was affected with confirmed plague—so, at least, says Dr Lacheze, who reports the experiment; Clot-Bey thought the case doubtful. Three days subsequently, the man was convalescent. In three other cases, no effects followed the inoculation of the blood. In two cases the serosity from a carbuncle, and in one the pus from a bubo, was used for the purpose of inoculation; in none of these cases was the disease induced. With respect to the single case, in which the disease (mild indeed) occurred after inoculation with the blood of a pest-patient, it must be kept in mind not only that the man was exposed, as a matter of course, to the epidemic atmospheric influences then existing in Cairo, but also that, for three days before the performance of the experiment, he had been living in a pest-hospital, which was necessarily a focus of pestilential infection.

Clot-Bey inoculated himself, in six different punctures, with the blood of a pest-patient: no constitutional effects followed. A few days subsequently, he inserted some pus from a bubo on the inner part of his left arm: this was followed by a slight indisposition, which he attributed to the absorption of the purulent matter, but which bore no resemblance to the symptoms of plague. The results of certain trials made by Professor Pruner in 1829, and by Dr Rossi in 1841, were altogether similar.

“The general *conclusion* of the Commissioners upon the important point under consideration is to this effect: ‘The results of the inoculation of the blood drawn from the vein of a plague patient, or from the pus of a pestilential bubo, have been equivocal; the inoculation of the serosity taken from the phlyctenæ of a pestilential carbuncle has never given the disease. It is therefore not proved that the plague can be transmitted by inoculation, even under the influence of a pestilential constitution.’”—Pp. 37-38.

Then as regards direct contact with the sick:—

“All the medical men who accompanied the French expedition to Egypt, Assalini alone excepted, were of the opinion that the plague is propagated by *contact* with the infected. For nearly forty years after their return, this opinion has been universally received and acted upon. It was not till 1835 that a change of sentiment began to be manifested among medical men on this most important subject. In the course of that year, as we have already seen, a number of European physicians had an opportunity of studying the terrible pestilential epidemic that ravaged Egypt. Impressed at first most firmly with the belief of the transmissibility of the disease by contact with the sick, they have all, with scarcely one exception, completely changed their opinion; as, indeed, MM. Brayer and Cholet, who had observed the epidemics of 1819, 1826, and 1834, at Constantinople, had previously done. The writings of these last named gentlemen, and subsequently of Clot Bey and Aubert Roche, have mainly contributed to effect this very remarkable revolution in medical doctrine. We shall briefly note a few of the most interesting facts which have been of late years made public.

“During the pestilence of 1824, upwards of 30,000 persons died in Cairo, while not more than two or three cases occurred in Alexandria, although the communication between these two cities was constant and uninterrupted. In 1834, on the other hand, the plague broke out and continued in Alexandria for a very considerable time, before it made its appearance at Cairo; and it had existed for fully eight months in the former city, before there was any sign of

it in Mansoura and Damietta, although the daily intercourse between these places remained entirely free. Dr Coch, principal physician of the Egyptian fleet, mentions an interesting fact observed by him in 1835. Ten men had gone from Sakkarah, a populous village, to Cairo, where the plague then existed. On their return home, every one of these men sickened and died; yet not a single member of their families, who had assiduously waited upon them, took the disease. 'Such a fact,' it is emphatically added, 'was observed hundreds of times during the course of this great epidemic.' The same gentleman states, that the Viceroy having ordered that all vessels in which the plague appeared should be subjected to a quarantine of eleven days, the sick were immediately disembarked and carried on shore by the sailors of the fleet; and although these sailors returned on board and communicated freely with the rest of the crews, not a single case of infection was the result.

"Every year pilgrims depart from all parts of the country, subject to the laws of Mahomet, to go to Mecca. Caravans from Morocco, Darfour, Egypt, Constantinople, Persia, Asia-Minor, and Syria, converge at Djedda, at Medina, then at Mecca, the central point. They carry merchandise with them, for this pilgrimage is also a fair. Has the plague ever broken out at the place of meeting of all this population and all this merchandise, which have often, be it remembered, come from places infected by it? No. On the contrary, it is proved that, from time immemorial, the plague has never been seen in Arabia. The epidemic plagues which desolated a great part of Lower Egypt in 1825 and 1835, had not one victim in Arabia, notwithstanding the daily and perfectly free communication which existed between these countries. This has also invariably been the case with respect to the pestilential epidemics of Constantinople, Smyrna, or Syria. The Arabian historians pretend that their country owes this immunity to the protection of the Prophet. Nubia, Sennaar, and Abyssinia, notwithstanding their close connexion with Egypt, are not acquainted with the plague.

"Clot Bey observes,—'During the five months that the epidemic of 1835 lasted, MM. Gaëtani, Lachèze, Bulard, and myself at Cairo, MM. Duvigneau, Scisson, Perron, Fischer at Abouz-Abel, and MM. Rigaud and Aubert at Alexandria, visited the infected in the hospitals and in private houses. None of us took the least prophylactic precaution. We were in immediate contact with the sick during all the stages of the disease. We received, upon our clothes and upon our hands, the matter that was rejected by vomiting, the blood of those who were bled, the pus from the thousands of bubos which we opened. More than a hundred dissections were made at Cairo, and we passed whole hours in endeavouring to detect, in the bodies of those who had just expired, the pathological alterations, which had hitherto been so little attended to. The same researches were made with equal care at Alexandria. Dr Rigaud is the only one among us who fell a victim to the reigning epidemic. It is remarkable, that many physicians who scrupulously avoided all contact with the sick, and with suspected objects, were attacked with the plague and died. Of this number are Dr Mannucchi, sen., Leopold and Lardon.'"—Pp. 39-41.

The conclusion of the French Commission is, that

"On the one hand, immediate contact with thousands of plague-patients has not been followed by any dangerous consequences to those who have been exposed to it in the open air, or in well ventilated chambers; and on the other, that there is not a single fact which indisputably proves the transmissibility of the plague by mere contact with the sick."—p. 43.

Such being part of the evidence regarding the non-contagious nature of plague, we shall pass over what is said about its being communicable by fomites. There is not one fact which proves that the disease can be spread in this manner.

Our next question is, is plague infectious? The answer of the French commission to this is in the affirmative. It is true that there is great difficulty in determining with exactitude the infectiousness of any disease, while a pestilential constitution of the atmosphere exists, and when consequently a whole population is exposed to the morbid influence. When a vessel, however, carries one or more affected persons beyond the focus of infection, she cannot take along with them all the causes, past and present, which are necessary to the development of an epidemic. If, then, infected vessels have carried the disease into previously healthy ports, and surgeons or other attendants upon the sick have caught the disorder without any other appreciable cause, we are not warranted in the present state of our knowledge in denying its infectious nature. That such has frequently been the case will appear from the following statement:—

“Since the year 1720 down to the present period, 25 vessels having the plague on board, have arrived in the ports of France or Italy; 10 at Marseilles, 5 at Venice, 8 at Leghorn, and one at Genoa. We shall confine our remarks to the circumstances connected with the arrivals at Marseilles, the official documentary evidence upon these being much more complete than in the other cases. The years in which these arrivals occurred are in 1741, 1760, 1784, 1785, 1786 (*bis*), 1796, 1819, 1825, and 1837. The entire number of cases of plague (omitting all the doubtful ones), treated in the lazaretto of this port since 1720, is 32; and of these, 18 have proved fatal. Three of the quarantine surgeons caught the disease during their attendance on the infected; they all recovered. A fourth surgeon, who had arrived on board an infected ship, and subsequently acted in his professional capacity in the lazaretto, died. Four of the health-guards, who had been (most improperly) put on board infected ships, contracted the disease in the lazaretto; two died. A sailor, who acted as assistant in the lazaretto infirmary, was taken ill and died. Two other sailors, belonging to an infected vessel, but who seemed to have caught the disease in the lazaretto where they had been confined for more than 12 days, died. In the 11 cases therefore of plague, which might have been contracted in the lazaretto, 6 of the patients recovered, and 5 died: all the latter cases occurred in men who had been on board infected vessels. Of the three health-guards, who had caught the disease on board, only one recovered. Indeed it would seem that, in all the fatal cases, the patients had been for a longer or shorter period of time on board infected vessels. It appears, also, that not one of the cases, which occurred on board a vessel at sea during the voyage to France, recovered;—a circumstance that very emphatically shews the malignancy of the disease when it occurs in a crowded confined space, and the great advantages of treating it in a large open lazaretto.”—P. 51.

It would seem from all the facts recorded, that as regards infection, plague, in its mode of propagation, resembles the typhus of our large towns; and, like them, is capable of being mitigated or entirely removed by hygienic regulations. This conclusion is borne out by numerous other facts, among which the following are very striking:—

“In 1834, in the month of June, during the insurrection which broke out in Judea, the insurgents pillaged and sacked Jerusalem. A number of Roman Catholics took refuge in the convent of St Saviour in this city.

“At the end of ten or twelve days of close confinement, I remarked,” says

M. Delong, "cases of plague among this distressed population, huddled together in their dormitories, upon and under the stairs, in the courts and other chambers of this vast building. After twenty-five days of expectation, Ibrahim Pacha at length arrived, and the city was relieved. The holy Fathers, full of alarm, hastened to clear their dwelling of all this mass of people, and shut themselves up in most strict quarantine. What happened? Of all those who left the convent three only died four or five days afterwards. But, out of 63 priests, who thought to save themselves by isolation, no fewer than 22 died."

"What occurred in the musical academy at Kanke in 1835 is still more deserving of attention:—The plague having broken out in this school, although it was kept in the strictest quarantine, the pupils were sent into the desert, where they continued for upwards of a month. In the mean time, all the rooms were well cleansed and purified; and no person had remained in the building. Not one case of plague occurred in the desert: but no sooner had the boys returned to their old quarters, than several were taken ill; and each day several fresh cases were reported. Again were the boys sent into the desert; and again the disease ceased to spread. While they continued in the desert, 15 soldiers were employed to go daily to the village, where the plague was raging, for provisions; but none of these men caught the disease themselves, or gave it to the boys."—Pp. 46, 47.

"Dr Mead mentions that at Rome, during the plague of 1657, Cardinal Gastaldy prohibited any infected person, and even any person in health who was suspected, to remain in their houses. They were promptly taken to the hospital, built on the island which divides the Tiber. With respect to those who had occupied the same house, they were placed in other hospitals near the city, from whence they were removed into the island if the disease showed itself. During this time, the Cardinal was very careful to have all the furniture taken out of the infected houses, exposed in the open air, and the apartments left open, in order to purify them. By these means the Cardinal, in two months, caused the plague to cease, after it had raged at Rome for two years.

"But that which deserves most attention, adds Dr Mead, is, that, before these regulations, it was constantly observed that the disease rarely appeared in a house without attacking all its inhabitants; whereas, after they had been put in force, scarcely five out of a hundred of those who were removed from the proximity of the infected, were subsequently attacked with plague.—*Mead on Pestilential Contagion*, 1720.

"The Board of Health at Constantinople has, for the last eight or nine years, followed out the prophylactic method recommended by Gastaldy and Mead, removing the infected to a hospital, and emptying every house, in which a case occurs, alike of its inhabitants and furniture, having it well cleansed and purified, and not allowing any one to occupy it for the space of a month. It is to the adoption of these means that the Board attributes the exemption of Constantinople and the principal ports in Turkey from the plague, since the year 1839. If, in place of acting in this manner, the houses of the infected were condemned with their inmates to a severe quarantine, the result would necessarily be to create fresh foci of pestilential infection, and thus increase the very evil that is vainly sought to be extinguished."—P. 49.

These facts require no comment. The last point to which we shall direct our attention is, how are the extensive ravages of plague to be explained, and what is its real origin? In endeavouring to answer this question, it must be observed in the first place, that although plague may arise spontaneously in a number of different localities, it is no doubt true that in recent times, Egypt, Syria, and Constantinople—more especially the first—have been the principal foci of the disease. This leads us to inquire whether there are any circumstances peculiar to these places, which may

rationally be considered causes of the disorder. The following are the observations of a gentleman, who long resided in Egypt:—

“The inhabitant of the Delta, says M. Hamont (*Destruction de la peste et des quarantaines. Bulletin de l'Academie Royale de Medicine. Paris: 1844, t. x. p. 40*), has prepared the causes of his own destruction. The destitution, filth, and misery of the poor inhabitants are extreme. Their wretched hovels are so horribly disgusting as almost to defy description; they are not only surrounded by, but are actually receptacles of, heaps of ordure and putrid matters. Not unfrequently the dead are buried immediately under the mud floors of these dwellings of the living; and many of the graves in the cemeteries (which are always within the villages), being left open, are continually exhaling a stench that is utterly intolerable to any stranger. Then, again, the food of the Fellah is always of the worst description, and often too of the most scanty supply. Rotten cheese, decayed vegetables, semi-putrid flesh or fish; such are the articles that he lives upon. The very water that he drinks is filthy and impure. And then think of his mental and moral condition; the brutish degradation of all his faculties and affections, his hopeless servitude, his blank unmitigated wretchedness.

“The hygienic state of the cities and larger towns in Egypt is not much better than that of the villages. Cairo, with its 200,000 inhabitants, is a very hot-bed of the most disgusting and pestiferous impurities. From the canal, which traverses it, there is constantly steaming forth a cloud of intolerable offensiveness; and yet this is the supply of water for the use of its people! There are no fewer than 35 cemeteries, of which 25 are within its walls. In the Copt quarter of the town, the dead are buried under the floors of the houses; and nothing but a few boards separate the living from the putrid bodies of the deceased. From 80 to 90 corpses have been known to be huddled together in these horrible *sub-domal* receptacles. Can we therefore wonder that Cairo should be a generating focus of pestilential disease?”—Pp. 22, 23.

The neighbourhood of the Euphrates, in Syria, and that of the Danube, in Turkey, present the same endemic causes of insalubrity:

“The poorer classes in Moldavia and Wallachia live in the greatest misery and filth. After the heats of summer, almost all the prevailing diseases assume a character of marked gravity. Malignant intermittent fevers are always more or less prevalent in autumn; these generally precede the appearance of the plague, which in these countries is usually only sporadic.”—P. 24.

“When Dupuytren inquired of the young Egyptian students, who had been brought by Clot-Bey to Paris for medical education, what was the opinion of the most enlightened men in Egypt respecting the origin of the Plague, the answer they gave was, ‘la peste vient de la terre.’ All that is conveyed by such an expression is merely that a humid and marshy soil, more or less covered with decaying vegetable and animal matters, is a powerful cause of the alteration of the atmosphere, and consequently of the disease. Now nothing can better serve to show the importance of the conditions of the soil, in reference to the production of the plague, than the comparing together of two localities in the same country, inhabited by the same people, and governed by the same laws and customs, in one of which the disease is endemic, while the other remains entirely exempt from its attacks, even although the infected may die within its walls.

“Fayoum is elevated above the level of the sea: Damietta borders upon the shore. At Damietta, the air is hot and damp; at Fayoum, it is hot, but dry. Fayoum is free from marshes; Damietta is surrounded with ponds of fresh and salt water. While at Damietta the cemeteries are in the town itself: at Fayoum, they are at a distance from the dwellings. Here, the water, although not very pure, may be drunk without inconvenience, owing to the quantity of nitre it contains; at Damietta, the fresh water is either mixed with sea-water, or it is rendered impure by excrementitious products, and by animal and vege-

table matter in a state of putrefaction. Fayoum is surrounded by the desert of Lybia ; Damietta is enclosed by rice-fields, and situated in front of the pestiferous Delta."—P. 31.

These and like facts and considerations have led the French commission to the following conclusions:—

"In all countries where the spontaneous plague has been observed, its development may be reasonably attributed to certain determinate conditions acting upon a large portion of the inhabitants. The principal of these conditions are, residence upon marshy alluvial soils near the Mediterranean or near certain rivers, as the Nile, Euphrates, and Danube ; the dwellings being low, crowded, and badly ventilated ; a warm moist atmosphere ; the action of putrescent animal and vegetable matters, unwholesome and insufficient food, and great physical and moral wretchedness."

"All the producing causes of the plague being found united in Lower Egypt, the disease is endemic in that country, where it is seen every year in the sporadic, and about every tenth year in the epidemic, form.

"Whenever the plague has raged with violence in Africa, Asia, and Europe, it has always exhibited the principal characters of epidemic diseases."

The ravages of plague, therefore, are principally dependant on local causes, and the essential nature of this disease is endemic. It seems to us that no other conclusion can be derived from the facts above narrated, than that the quarantine laws ought to be abolished, and that our efforts to prevent plague, instead of being carried on at the ports of healthy countries, should commence in the districts where it originates. To this end, the influence of our Government should be directed, to impress upon eastern European nations the importance of good hygienic regulations ; the necessity of pure air and cleanliness, of appropriate diet, and an improvement in all those circumstances which tend to elevate the social position of man. By so doing, there is every reason to hope that this fearful pestilence, if it could not be altogether annihilated, would be so far lessened in intensity, as to be rendered comparatively innocuous. The panic and dread with which it is even now regarded by the ignorant, would then be abolished, and thus, probably, another important cause of its production removed. Lastly, the free intercourse which would exist among commercial nations, would react favourably upon the inhabitants of Egypt, Syria, and Moldavia ; the arts of civilization would teach them to drain their pestiferous swamps, and reap copious harvests and the means of supporting life, from those lands, which at present tend only to originate and diffuse desolation and death.

The pamphlet of Dr Milroy, which has furnished us with the facts embodied in this article, is very ably executed, and we strongly recommend it to the members of the profession, who, from the position they hold in society, may be expected to be consulted on this subject. Lastly, as the quarantine laws are to be brought under the consideration of Parliament next session, it is worthy of the perusal of every legislator who is anxious to make himself acquainted with the important facts of the case, divested of circumlocution, and condensed into a readable form.

Lectures and Observations on Clinical Surgery, by ANDREW ELLIS, Fellow of the Royal College of Surgeons of Ireland, &c., &c. Dublin: Fannin and Co. 1846.

THIS work contains the substance of a series of clinical lectures, delivered by Mr Ellis at the Jervis Street hospital, Dublin. It is one of a class which we consider eminently useful, as serving to extend the benefits of hospital experience to the profession generally; and we think it is matter of regret that in this country so few lectures on clinical surgery are published in a collected form such as this, to which surgeons might refer for practical suggestions in troublesome or doubtful cases.

The plan and execution of the work are exceedingly good. Mr Ellis seems to have been well supplied with important cases, and has spared no pains to make his discourses both interesting and instructive. These lectures contain much valuable matter; but as our limits prevent us making lengthened extracts, we must confine our remarks to the few points of our author's practice which we consider objectionable.

In reading the cases of suicidal wounds of the throat, we notice that immediately after describing the nature and circumstances of the wound, Mr Ellis proceeds to mention the closure of the divided parts by sutures supported by compresses of lint and adhesive plaster. Now, if (as we are led to infer from the manner in which the cases are detailed) Mr E. advocates *immediate* closure of the wound, we consider the practice as at once dangerous and useless. Dangerous, because under any circumstances there is risk to be apprehended from swelling of the divided parts from infiltration, and this is necessarily increased by stitching the wound closely. Besides, after the active hemorrhage has been arrested, there is always more or less oozing of blood, which, if it does not escape readily by the wound, is apt to trickle down the air passages, and may prove fatal by suffocation. Mr Liston relates a case in his work on Practical Surgery where the patient, except for his timely aid, would have been suffocated from the pressure caused by confined coagula, although the air passages had not been opened into. The addition of compresses and plasters must of course add to the danger, on the interruption they cause to the breathing and circulation. And the practice is useless, because the constant separation of the deeper seated parts of the wound, caused by the slightest motion of the head, by attempts to swallow or cough, together with the passage of air and mucus between the divided surfaces, all render immediate union of such wounds impossible. Sewing up the wound, then, can only serve to render the appearance of the unfortunate patient less frightful, whilst it greatly increases his real danger. The insertion of a single point of suture near each end of the incision, in extensive transverse wounds, for the purpose of

diminishing the exposed surface, is not liable, of course, to these objections.

In the details of an operation for securing the carotid, mention is made of a practice which we thought had been dismissed from modern surgery—we mean the use of a blunt instrument for opening the sheath of the vessel preparatory to passing the ligature. “The sheath was now cautiously opened with a blunt silver knife (a fruit-knife).” Now the degree of force necessary to tear open the cellular sheath with such an instrument is very injurious, as tending to destroy to a greater extent than necessary the vascular connections between the artery and its sheath, thus increasing the risk of secondary hemorrhage; whilst the small portion that does require to be prepared for the ligature can never be so fairly cleared as when a sharp instrument is used. For these reasons we have always looked unfavourably on blunt instruments in general; whilst, perhaps, the economical feelings characteristic of our country incline us to regard silver fruit-knives as articles of luxury which might safely be dispensed with in surgical armamentaria. In the author’s remarks on this case, we are at a loss to understand why he should think “it might be fairly supposed” that the symptoms of hiccough could have depended on some injury done to the phrenic nerve during the operation. We cannot “suppose” the possibility of injuring the phrenic nerve in an operation for tying the common carotid artery.

Some of the expressions which Mr Ellis uses in laying down his rules regarding cases that demand the operation of trepan, are scarcely definite enough; especially in rules 5, 6, and 7, the expression “bad constitutional symptoms” is too vague, and might lead to practice very different from what he means to inculcate, if we may judge from his excellent remarks in the concluding part of the fifth lecture.

In conclusion, we would again recommend this book to the profession as a useful and instructive work; the chapter on injuries of the head, and wounds of the abdomen, will be found particularly interesting to the practical surgeon, and worthy his perusal.

The Microscopic Anatomy of the Human Body in Health and Disease.
Illustrated by numerous drawings in colour. Parts I. II. and III. By ARTHUR HILL HASSALL, &c. London: Highley, 1846.

WHAT are we to understand by the term, Microscopic Anatomy? Are we in future to make divisions in a science according to the instruments employed in its prosecution? If so, why not speak of a scalpel and forceps anatomy? If we applied this rule to the other sciences we think the effect would be very curious. We

might then have an ocular and a telescopic astronomy, a spade and a plough agriculture, a retort and a blow-pipe chemistry; or, to draw illustration from branches of our own profession, we could speak of a stethoscopic medicine, a knife and saw surgery, and a lever and forceps midwifery. We need not say that all such distinctions are unscientific and absurd, and that we regret our literature should be tainted with works based on such frivolous distinctions.

It will be seen from the following statement in a notice attached to the second number, that this work is put forth with no small pretensions :—

“When the paucity and incomplete nature of the works which have hitherto appeared on this subject are remembered, as well as the numberless papers and memoirs on special portions of it lying scattered through various publications, many of them rare and difficult of access, and the results of which papers too often contradict each other, its *necessity* will be unhesitatingly admitted.

“The design of the work, if not altogether original, is almost unique, the only work extant which embraces the entire range of microscopic anatomy, and this *not exclusively human*, is that of Mandl.”

Now, it is true, that with this one exception, works on “microscopic” arts or sciences are very rare. The reason of this is, we presume, that they have no existence, and that the cultivators of general anatomy and pathology employ every instrument and method of research, simply as means to an end. When, however, as is stated above, it is endeavoured to be maintained that works, on the subject treated by the author, are few and incomplete, or that the design of the one now before us is unique, we feel bound to observe that the assertion is incorrect. The Treatises of Henle, and Todd and Bowman on General Anatomy, and of Müller and Wagner on Physiology, certainly are not designated “Microscopic,” neither did Vogel entitle his book “Microscopic Pathology.” Such men could not have employed terms so ridiculous. But as regards the nature of the subject we can distinguish no difference between the so-called “Microscopic Anatomy” of Mr Hassall, and the general or physiological anatomy of other writers. A glance at the plates are sufficient to prove that it is in no way more “human,” in short, that it differs from them only in name, and that is a bad one.

It is said, however that—

“Further, one great feature of the book, it is hoped, will be the *fidelity of the drawings*; a principal fault in most of the published works on minute and microscopic anatomy being that the figures do not exhibit the characters described in the text.”

Here it may be asked to what published works on microscopic anatomy does this passage allude. We know only of one, that by M. Mandl, and his figures are very exact. But we are willing to confess that the illustrations given by Mr Hassall are sufficiently

characteristic. They are representations which do not bear the stamp of high art, on the contrary, some of them are very coarse, still they are as mere drawings true to nature, and as we have said, characteristic enough for the purpose of illustration. But here again we must find fault with the colour. In the first number the blood corpuscles are represented of a beautiful rose pink—in the second they are a lively red, whilst in the third they have degenerated into a kind of dirty brown. If Mr Hassall will study the blood corpuscles attentively by day light, he will find that they are of a yellow colour, and not pink, red, or brown, as he has erroneously represented them.

We seriously advise the author to change the title of his production. Why not call it on the structural or general anatomy of man, or more scientifically on the histology of man. We would further suggest that the colouring of the lithographs be rendered less gaudy, and more natural. If our hints be attended to, we may on the completion of the work notice the contents more at length. To do so at present would be unjust to the author, and useless to our readers.

Liebig's Question to Mulder tested by Morality and Science. By Dr G. T. MULDER, Professor of Chemistry in the University of Utrecht. Translated by Dr P. F. H. FROMBERG. London and Edinburgh. 1846.

At length the rumours of approaching war which have long been current in relation to the great chemists of Giessen and Utrecht have found fulfilment in actual hostilities commencing; and appropriately enough, the *casus belli* is that same sulphur which has so much to do with all modern wars. A great sulphur question brought Britain and Sicily to the verge of actual battle a few years ago, but happily one of the belligerent powers, was so notoriously the better fighter of the two, that the other came to terms before hostilities began. Unfortunately in this minor sulphur question, Utrecht and Giessen are so well matched, that neither thought of compromise, and already the first round has been fought of an unhappy duel, which will vex the spirits, ruffle the tempers, and embitter the affections, besides wasting the time of the two combatants, long after the original ground of quarrel has been satisfactorily disposed of, and the science of the matter in dispute, for ever settled.

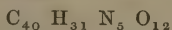
Liebig and Mulder are at issue as to two points. 1st, Is there such a substance as the latter calls *proteine*? 2d, Does *proteine* contain sulphur? They form in truth, however, but one question. Does Mulder's *proteine* contain sulphur? If it do, it does not deserve its name from the Greek *πρωτος*, first, as being

the organic basis or primary constituent of the azotised tissues. In short, it is not proteine. Liebig would probably be inclined at present to derive it from Proteus the changeable.

The following extract from Professor Johnston's excellent preface will more fully indicate the point in dispute :—

“The main point assailed by Liebig will be understood by the following statement :—

“Mulder, many years ago, examined the fibrin of blood, the albumen or white of the egg, and the gluten of wheat. When these substances are dissolved in caustic potash, with the requisite precautions, and the solution is then made slightly acid by the addition of vinegar, a white precipitate falls, which Mulder collected and carefully analysed. To this substance, for certain theoretical reasons, he gave the name of *protein*. It was free from sulphur and phosphorus, —both of which are contained in the albumen of the egg and the fibrin of the blood. It consisted of carbon, hydrogen, nitrogen, and oxygen only, and was represented by him by the formula



By degrees, as his researches multiplied, and were enlarged and confirmed by others, his own views extended, and he arrived at the following general conclusions :—

“1mo, That this protein formed the basis of a large group of animal substances—the albuminous group—comprising fibrin, albumen, casein, the crystalline lens of the eye, hair, horn, &c.

“2do, That in these substances the protein was combined with oxygen, sulphur, or phosphorus, or with two of these bodies, or with all the three,—and that the proportions of these several elements determined the special qualities of each compound of the albuminous group.

“3tio, That the sap and leaves, but especially the seeds, of plants, contained protein in combination with sulphur and phosphorus, as it is found in the animal body,—and that the gluten of wheat, the legumen of the bean, and the nitrogenous substances generally, which are found in the seeds of plants, were compounds of this kind. Lastly, he ventured to announce in a brief manner,

“4to, That these substances were formed by the plant out of the food drawn by its several parts from the air and from the soil,—that it produced them for the purpose of diminishing the digestive labour, so to speak, of the animal—of supplying it with food fitted directly to form and nourish its muscular and albuminous parts—and that the animal derived its whole supply of the raw material out of which these parts were to be built up, from the vegetable food on which it lived.

“This beautiful train of research and reasoning naturally attracted the attention of scientific physiologists, and gave to protein an importance in the history of Organic Chemistry to which scarcely any other known body can lay claim.

“It is a remarkable fact, that up to January last, the researches of all other chemists only tended to confirm Mulder's experimental results, and to strengthen and widen his deductions. The laboratories of Paris, of Giessen, and of Stockholm, had been employed upon them at intervals for several years, and yet the existence and characters of protein, as described by Mr Mulder, were only everywhere confirmed.

“But in January last, Liebig announced, in his *Annalen*, that he could no longer obtain protein possessing the composition and properties assigned to it by Mulder. He intimated his belief that the so-called protein always contained sulphur,—that without sulphur it could not exist,—and that, when perfectly freed from sulphur by the action of caustic alkalies, it ceased to possess the characters or composition of Mulder's protein. He threw doubts, in like man-

ner, upon the existence of the so-called oxides of protein, and invited Mulder to explain away the difficulties which he now professed to meet with.

"Subsequent to this, in the May number of the *Annalen*, a paper appeared by Dr Laskowski, one of Liebig's pupils, detailing the experiments to which Liebig had previously alluded, and drawing similar conclusions. Two other short memoirs in the same journal, and by pupils of the Giessen School, showed that the quantity of sulphur previously assigned to albumen and fibrin by Mulder was too low; a fact which the newer researches of Mulder himself has established, but which does not at all affect the existence of protein, or the value of the so-called protein theory."

The pamphlet before us is occupied in showing that if Mulder's directions be followed, an unsulphureted product is obtained, identical with what he described in his original papers as *proteine*; and in explaining how others have in some cases procured results differing from his.

One would conceive that two chemists might have quietly enough discussed a problem so unexciting, as, does a certain substance contain sulphur, or does it not? without finding it necessary to indulge in taunts or evil speaking on either side. It has, however, seemed otherwise to the Dutch and German chemists. According to Mulder, the first offence was given by Liebig in his paper in the *Annalen der Chemie* for January, 1846, p. 132, 133. In this, he tauntingly begs that it may please Mulder to mention with every possible detail in what way he obtained protein, and affirms that he (Liebig) never has been able to prepare it with the properties described by Mulder. The Utrecht chemist appears to consider this query as containing an implication against not only his scientific accuracy, but also his moral honesty. Moreover, he reproaches Liebig with duplicity, in as much as the latter formerly professed, through his pupil Scheerer, to have confirmed all Mulder's analyses of *proteine*, and now he declares, that he never succeeded in making it. The motive which Mulder supposes to have influenced Liebig in acting thus, was indignation at the former for teaching views different from Liebig's, in his work on physiological chemistry.

"Freedom of scientific opinion has never been understood by Liebig. For years past a tribunal has been established in Giessen, before which Liebig is at the same time accuser, witness, public prosecutor, advocate, and judge. Before this tribunal a case is rapidly terminated, but grace or justice can *never*, be obtained there. From this tribunal even the purest innocence is never dismissed without being whipped and branded; and for this purpose again Liebig holds also the office of executioner, and is never fatigued with whipping and branding. *Truth!* he exclaims, and goes on whipping; *Truth!* and down comes the rod; *Truth!* he repeats once more, while he is heating his branding-iron red-hot; *Truth!* finally, and he presses it on the forehead of the chemists of the day, and rejoices in the ascending vapour. If, perchance, this whipping and branding is discontinued for some days or weeks, then he talks of forbearance (*Annalen*, January 1846.) He is, in his own estimation, a hero in the empire of morality, because he has deigned for some days or weeks to leave the rod at rest."

Again,

"Almost every one who moves on the same scientific ground with him self, has been attacked by him with a fury, such as was never exhibited in science. He leaves no one at rest; and pronounces judgment upon men and things in a manner which grows bolder, more severe, and more afflicting, as his circle of knowledge expands.

"I shall quote here a few out of the hundreds, nay thousands of instances, in confirmation of the above statement.

"In the *Annalen* for January 1846, p. 105, he calls Laurent 'one of the most talented chemists of our time, and the most rich in genius;' and yet, on the same page, he represents him as 'a stage-hero, who covers himself with gilded paper, made out of the undervalued labours of others;' while in p. 112, Laurent and Gerhardt are said to be 'two conceited self-complacent cocks strutting about on the top of a dunghill.'

"It is true that some individual is now and then highly praised, but only with a view to the rule: *Tolluntur in altum, ut lapsu graviore ruant*. Laurent first was persecuted for a succession of years, then he was allowed to teach at Giessen, and now he is a cock on a dunghill. Gerhardt was first praised for his excellent translation of the *Chimie Organique* (see the preface to that translation); now he is accused of having mutilated that book (*Annalen*, January 1846, pages 106, 107). Formerly, Mitscherlich's language was scorned as *old wife's babbling* (*Ann.*, 1841, p. 358); now he is quoted as an authority against Gerhardt (*Ann.*, January 1846, p. 118), and is again 'Herr. Professor Mitscherlich.' And the man who, with all the wicked purpose of wounded self-love, could sneer at one whom he formerly called *the most experienced chemist of our time, and probably of all past times*—this same man now dares to write (*Ann.*, January 1846, p. 117), 'that words fail him to express his indignation against Gerhardt's behaviour towards Berzelius,'—a behaviour which certainly deserves to be met with the same indignation as that of Liebig towards Berzelius (*Ann.*, May 1846, and *Comptes Rendus Complets*, Febr. 1845). This man (Liebig I mean) ought first to feel indignation against his own actions before he expresses it so warmly against those of others.

"Four years ago, I myself was held up as an example to Dumas (*Ann.*, Bd. 33, s. 202); five years ago everything I did was right, and all I had done had been confirmed in his own laboratory (Letter of June 1841); 'but now I have contradicted him on almost every page (!) of the latter parts of my work on physiological chemistry—I hurry towards an abyss, and most of my results are false. Now my hunt after numbers has mutilated the science, and through me physiological chemistry has become unworthy of confidence.' (Letter from Liebig, 29th March 1846.)

"In this manner Liebig has got into quarrels with every one; and a legion of pamphlets has appeared against him, in reply to his unwarranted attacks, which are always made under the mask of truth. Men, such as Mohl, who never before used the pen for any other purpose than for the quiet advancement of science, were forced to shake off the odium that was thrown upon them and their labours; and though numbers have called out to him, in their deep conviction of his errors, 'Cease your injustice'—he still goes on like a madman, seizing one after another, and always under the detestable war-cry of *love for truth*."

Such are the imputations which two of the greatest European chemists cast upon each other. What can we expect from the younger men of science, when such an example is set them by these illustrious seniors. The accusations are true, or they are false; but the adoption of either alternative lowers our estimation in the one case of the accuser, in the other of the accused. We can by no means sympathise with the spirit in which Liebig demanded from Mulder a full account of his process for *Proteine*, although the request, if

couched in becoming language, would have been reasonable enough. Neither was it just of the Giessen chemist to omit all reference to his previous success in obtaining proteine. On the other hand, we must differ from Mulder, when he affirms that Liebig is not a truth-loving, truth-seeking man. We are satisfied that he is both. He is also, however, gifted, or perhaps we should rather say afflicted, with a satirical, sarcastic spirit, which prompts him, often with no very severe intention, to say bitter and most provoking things. A nickname, or a thoughtless epithet, stings often very deeply, and leaves sometimes an incurable wound. It is in gratification of this temper, not from jealousy of their discoveries, that Liebig makes so many enemies, by his scoff and derision. Mulder, moreover, had given some provocation, though we believe unintentionally. In a private letter sent to Liebig, in 1844, which he reprints in his pamphlet, he expostulates with the latter in reference to his attacks on other chemists, in a strain which, however well meant on the part of the honest Dutch chemist, could not but be very provoking to the more impetuous German. We quote one sentence as a sample:—"Believe me," says Mulder, "once more, your (Liebig's) life is full of troubles. Your old age will be full of vexations, and your death-bed full of remorse."—P. 5. Prophecies such as these would provoke a milder person than even his greatest admirers represent Liebig as being.

We cannot, nevertheless, but commend the general tone of Mulder's pamphlet. Considering himself as wronged and insulted, he writes indignantly, but not offensively. He is manifestly no lover of controversy, or morbid hankerer after reputation. There is an honesty, sincerity, and simplicity, as well as a suavity and forbearance in his whole statement extremely pleasing, and we rise from it with the conviction that Mulder is a man accustomed to guide himself by a high and pure standard of morality. As for the scientific question—sulphur or not sulphur? we offer no opinion on the matter. Some third distinguished chemist who shall compare the results of Liebig and Mulder, must decide between them. Meanwhile we trust that neither sulphur, nor any other simple combustible, may again occur in such circumstance as to kindle an unprofitable war between two chemists.

Notes on the Epidemic Cholera. By R. HARTLEY KENNEDY, M.D., &c., Late Physician-General and President of the Medical Board, Bombay. Second Edition, revised. 12mo, pp. 279. London 1846.

THE first edition of Dr Kennedy's work on Epidemic Cholera was published at Calcutta in 1826; of that work the present edition is merely a revised reprint. Though the author has had extensive

opportunities since that time of witnessing "the ravages of cholera under every aspect, and in its worst epidemic form," he has seen no reason to alter any of the views which he took of the disease in his first edition. It is to be regretted, we think, that Dr Kennedy should have taken the resolution merely to reprint a work composed twenty years ago, during which so much additional experience of the ravages of cholera has been accumulated, not merely in India, but nearly throughout the whole world. The work has somewhat of a popular character, and undoubtedly contains much interesting matter on the subject of cholera, though it hardly belongs to that rigorous class of works by which alone we can expect the obscurities of such a disease to be dispelled or diminished. In the introduction and first chapter various details are given of the progress of the disease in India after its appearance at Jessore in August 1817; in the second chapter, Dr K. discusses the theories proposed in explanation of the nature of cholera. Into this subject we abstain from following him, farther than to notice the view which he himself has adopted. "I consider," he says, "a nervous derangement, similar to concussion of the brain, to be the disease, how induced I know not, following the above inexplicable shock sustained by the constitution; and the collapse and spasms to be symptomatic of the disorder of the brain; and, finally, I consider the purging and vomiting to be no part of the disease, but the struggle and effort of nature to relieve the constitution, and cast off the noxious principle which is destroying it. For the treatment of such a disease, the indication is distinctly apparent to relieve the brain by bleeding, and to induce the sanitary process of vomiting and purging where they do not exist, or to moderate them when violent. Into these brief injunctions may be resolved all that has been written on respectable authority; and the only difference in my theory is, that I would propose a regular systematic procedure, in preference to the uncertainty, hesitation, and undecidedness, which, in spite of every thing which has yet been written, continues to prevail, in a case where, of all others, the patient's safety most mainly hinges on the promptitude of treatment."—Pp. 56, 57.

In a note on this passage, the author quotes from a letter of Mr Connell's, a statement to the effect that cases in which there is much vomiting, commonly terminate favourably; that cases in which there is little or no vomiting, and much purging, are very apt to prove fatal; and that the most speedily fatal cases are those in which there is little of either vomiting or purging, the whole alimentary canal being as it were paralysed.

The third chapter is on the contagiousness and epidemic character of cholera, in which the author shows himself a decided contagionist, concluding with the following words: "I know no character belonging to any contagious disease, which cholera does not possess; and if it be not contagious, I know no other disease which I should be inclined to consider so."

The fourth chapter turns on a comparison between the virulence and malignity of cholera, and those of other epidemic diseases, with the purpose, almost superfluous at this time of day, of showing how greatly it exceeds in these bad qualities.

The fifth chapter is on concussion of the brain, containing a number of details designed to support the view which Dr K. has adopted of the nature of cholera.

The sixth chapter is on the nature and character of critical discharges, with the like object of upholding the author's views of cholera.

The seventh chapter is entitled, *On the Nosological Application of Cholera*, in which the author brings a good deal of learning to bear on his subject.

The eighth chapter is on the varieties and anomalies which appear in cholera, and on the cholera spontanea of Cullen, and in it the reader will find some interesting details.

The ninth and last chapter is entitled, *On Epidemic Cholera*, and here full details are given of the symptoms and treatment of the disease. The work concludes with an appendix, containing some additional information on several parts of the subject.

Although we cannot pronounce Dr Kennedy's work to be of a very high character, as a monograph on cholera, yet we must confess we have read it with much satisfaction. It contains no small amount of information on this frightful disease; rather, indeed, of a desultory kind, yet conveyed to the reader in an agreeable manner, and in such a way as strongly to impress us with the sterling honesty of the author's character. We must repeat, however, that we cannot forgive him for having sunk twenty years, fruitful in experience, and having served us up a twice told tale, notwithstanding the profusion of materials to make his tale new, lying at his feet.

Part Third.

PERISCOPE.

PHYSIOLOGY.

ON THE ABSORPTION OF NARCOTIC POISONS BY THE LYMPHATICS. By Professor BISCHOFF of Giessen.

It is now many years since Emmert, in consequence of a series of experiments, came to the conclusion that narcotic poisons were either not taken up by the lymphatics at all; or that, if so taken up, they became so altered that they lost all their poisonous properties. Henle, on the other hand, gave the

following explanation of the matter, to wit,—that narcotic poisons, following the general laws of imbibition and permeability, were actually taken up by the lymphatic vessels; but that, in consequence of the loss of contractile power in the walls of the latter, they were not conveyed through them, and hence gave rise to none of the usual symptoms of poisoning. By a new series of experiments, Professor Bischoff has demonstrated that neither of the above statements is correct, and that not only are narcotic poisons taken up by the lymphatics, but that they are also conveyed by them into the general circulation. Their propulsion through the vessels, therefore, is not prevented by any loss of power in their walls, but the absorption and conveyance of the poison is manifestly slow; and hence alone can the opposite results obtained by former experimenters be explained.

In consequence of the importance of the subject, we subjoin one of his most interesting experiments.

The abdominal aorta of a well-grown female rabbit was tied, a few minutes before 7 o'clock in the morning of the 1st July, about an inch below the point where the renal arteries are given off. The incision was made as small as possible, and great care taken to isolate all the neighbouring parts. Both extremities became paralysed. About a quarter past 7, a few drops of a mixture composed of equal parts of prussiate of iron (one drachm to an ounce of water) and nitrate of strychnine (two grains to the ounce), were applied to a wound in the inner side of the right thigh. The animal was now fixed on the operation table, and such a direction given to the latter as to insure the upper part of the body being higher than the lower, in order to avoid the chance of any fluid reaching the wound in the abdomen. In the course of an hour slight twitchings were apparent in the animal, and shortly after 8 it fell into that peculiar state of narcotism in which the slightest movement produces convulsions, and at half past 8 died under tonic spasms. The thoracic duct was immediately tied in two places—the first in the cavity of the thorax, and the second below the point at which the aorta was tied. No trace of prussiate of iron was found, either in the contents of the upper portion, or pericardium, gall, or serum of the blood: it was very evident, however, on the other hand, in the urine, and on the inner coat of the bladder. That portion of the duct lying by the side of the aorta, and going towards the right leg, was next tied at its under part. It contained a considerable quantity of clear lymph; and after being dissected out, was laid upon a glass plate, and carefully freed from any adhering tissue. It was next washed in clean water, and then dried by means of a piece of blotting paper, after which its contents were evacuated by means of a small incision, and received into a watch glass. On the very first addition of a few drops of the sulphate of iron, a beautiful blue colour was developed; thus leaving no doubt as to the existence of prussiate of iron in the lymph. The same blue colour was exhibited on the internal coat of the vessel after the application of the same test. No such reaction took place, either in the blood or neighbouring blood-vessels. The skin betwixt the wound in the thigh and that of the abdomen was perfectly dry. A large anastomosis betwixt the mammary and epigastric arteries was suspected, but no such was found.—*Zeitschrift für rationelle medicin von J. Henle 6, as quoted in Vierteljahrschrift für die Praktische Heilkunde. 1Vter. Bund. 1846.*

MATERIA MEDICA.

THE ACTION OF THE ACETATE OF MORPHIA ON CHILDREN. By Dr MELION.

Dr Melion believes, from the results of his experiments, that the acetate of morphia possesses more powerful anodyne and antispasmodic properties in children than opium. He divides its effects, when internally administered, into three degrees. 1st. All the secretions and excretions of the internal

organs become diminished, but the cutaneous exhalation becomes increased; hence the skin becomes moist, and a copious perspiration covers the head and upper parts of the body; but before this effect takes place it shows its influence on the nervous system, and pain and convulsions cease; its influence lasts from three to six hours, the children then pass a quantity of pale urine, and cutaneous transpiration becomes normal.

2d. The nervous system is the first part affected. The child becomes dull, drowsy, and gradually falls into a state of stupor; it lies with the eyes shut or half open, one more so than the other; the ball of the eye may be either fixed or may roll; the pupil is contracted and inactive; the heat of the head is increased, and the scalp and face are covered with copious perspiration; the child murmurs or speaks during its sleep, and moves its upper lip and lower jaw as in the act of sucking; if it awakens from sleep it desires to drink, and again falls asleep. This state may last for eight or twelve hours.

In the 3d degree, venous congestion shows itself over the whole body, the child lies listless, the skin is purple, the temperature diminished, the pupils contracted and inactive, the cardiac pulsations weak, the respiration slow, the pulse quick, or slow, small, and weak, and all secretions and excretions suppressed. If this state is not quickly removed, convulsions and death ensue.

Dr M. employed the acetate with great benefit. 1st. In intestinal catarrh, in the chronic diarrhoea of scrofulous children, and in the profuse debilitating diarrhoea of dentition. 2dly. In convulsions arising from the irritation of dentition or worms. And 3dly. In hooping-cough. As it causes drowsiness and stupor, and other nervous symptoms, even in small doses, he considers it contra-indicated in all cerebral or meningeal affections.—*Med. Wurtemberg Correspondenzblatt.*

SURGERY.

TIBIO-TARSAL AMPUTATION. By M. JULES ROUX, Professor of Anatomy and Physiology in the Naval School of Medicine at Toulon.

The communication of M. Roux is contained in a letter addressed to the editor of the *Annales de Thérapeutique*. He says,—“Allow a provincial surgeon to be the first to respond to your appeal on a question which interests, in so great a degree, both science and humanity. In the first place, I must avow that the important memoir of M. Baudens, and the remarkable success of Mr Syme of Edinburgh, were well known to me when I undertook the operation about to be described. I give the preference to the method of the English Professor, which I hope to have rendered more easy by a proceeding which belongs to myself, as may be seen by the following case:—

“In No. 98 of the ward for the wounded, in the hospital of the prisoners at the galleys in Toulon, lay the condemned 31,513, aged thirty years, of lymphatic temperament, a cap-maker by trade, who had yet thirty months to pass at the galleys to complete his sentence of five years to hard labour. Since the age of eighteen years, he has continued to suffer in the right foot from the effects of a sprain. Abscesses formed, which left numerous fistulous openings on the back and sides of the foot, from whence a purulent discharge continually escaped. Since his condemnation, walking has been so difficult and painful, that he has passed all his time in the hospital. Having established the diagnosis that the bones of the right tarsus were affected with osteitis and caries, and that the tibio-tarsal articulation was sound, I determined to perform the operation of Mr Syme of Edinburgh, somewhat modified by myself, in the following manner:—

“The operator, holding the foot in his left hand, carries with his right the blade of a strong knife to the posterior parts of the external surface of the

calcaneum. The incision is then brought in a straight line under the external malleolus. From this point it describes a curve—the convexity forwards—until it reaches the edge of the internal malleolus, the centre of the curve passing two or three centimetres from the inferior extremity of the tibia. From the internal malleolus the incision is continued, under the sole of the foot towards its external edge, forming a second curve, with its convexity forwards, corresponding to the articulation divided by the knife in Chopart's operation. From the external edge of the foot the incision is continued obliquely above the posterior and middle external surface of the calcaneum. In this manner all the integuments and soft parts are separated to the bone. In the second stage of the operation the neighbouring soft parts of the articulation are dissected and separated from the bones, in such a manner that this articulation remains bare, and the two malleoli, especially the external and the outer surface of the calcaneum, are completely exposed. In the third stage, the articulation is attacked at first externally and then internally. In the fourth stage, it is necessary to dissect the parts which adhere strongly to the posterior and inferior surfaces of the os calcis, and then to detach those which fill the internal surface of the same bone. For this purpose it is necessary that the bistoury, having divided the internal lateral ligaments of the tibio-tarsal articulation, follow the curve on the internal surface of the calcaneum. This last stage is very important, if we wish to avoid the division of the posterior tibial artery before its bifurcation into the plantars. The foot thus detached, after the division of the muscles inserted into the great tuberosity of the os calcis, leaves a wound of a slightly irregular oval form, or rather that of a racket, the narrow end of which corresponds to the external surface of the calcaneum. In the fifth stage the malleoli are sawed off transversely, on a line with the articular surface of the tibia, which remains intact. In the sixth stage, the arteries are tied, the wound cleansed, the edges brought in contact by sutures, in such a manner that the skin of the heel is applied to the inferior surface of the tibia. A bandage is then applied, the patient placed in bed, with the leg moderately flexed on the thigh, reposing on its external surface.

"This operation, which lasted ten minutes for the entire separation of the foot, was followed, 1st, by venous hemorrhage, which continued forty-eight hours; 2dly, gangrene of the anterior third of the plantar flap, attributable to the division of the posterior tibial artery above the point where it divides; 3dly, formation of a false membrane on the wound; 4thly, abscess in the inferior and posterior parts of the leg.

"At present, nearly three months after the operation, the patient has been for some time completely cured. The right leg resembles the thick end of a pestle, the extremity of which is entirely covered by the skin of the heel, resembling an elastic cushion. In the outline of the cicatrix, however, which is very solid, there are still two fistulous points, from which escape from time to time small drops of serosity. The patient can already support himself on the extremity of his stump without experiencing the slightest pain; yet I have not thought it proper, perhaps from an excess of prudence, to allow him to walk with the boot which has been made after the figure given by M. Baudens. The ultimate result I shall make known in a memoir, in which I shall endeavour to show—1. The advantages of the tibio-tarsal amputation; 2. The superior advantages of Mr Syme's method to that of M. Baudens; 3. The preference that it will be perhaps advantageous to accord to my mode of proceeding in preference to that of the Edinburgh professor; and 4. The necessity of banishing from surgery amputations in so-called places of election, and of establishing the great principle, that *it is always necessary to amputate as far as possible from the trunk*, especially since M. Malgaigne has successfully carried the knife into the articulation of the calcaneum and astragalus."—*Annales de Thérapeutique*, Novembre 1846.

We are happy to find that the operation first made known to the profession

by Professor Syme, through the medium of this Journal, is becoming gradually more extended. When generally practised, we have no doubt that it will be acknowledged to form one of the greatest improvements in modern surgery. In this opinion we are supported by the testimony of Professor Chelius of Heidelberg, who personally informed us last August that so it was considered by him. We had then the pleasure of seeing a patient in the Clinical Hospital of Heidelberg, who, instead of having his leg amputated immediately below the knee, had the foot only removed by means of Mr Syme's operation. In this case the stump was nearly well two weeks afterwards.

The description of M. Roux's operation is complicated and obscure. It does not clearly appear in what the peculiar modification consists, unless it be sawing off the two malleoli on a level with the articulating surface of the tibia, instead of removing it by taking away a thin slice of that bone. Such a modification would obviously be improper in cases where caries affected the articulation, and of very questionable advantage even when it is sound, as leaving the cartilage would probably retard the cure. Our readers will recollect that Mr Syme has recommended, as the best method of performing the operation, to cut across the sole of the foot, from the centre of one malleolus to that of the other, and always to saw off a thin slice of the tibia, connecting the two articular projections. The advantages of this method are, that the flap is long enough, there is no risk of sloughing, and the recovery takes place in a few weeks, instead of being retarded to months, as in the above case.

SUCCESSFUL EXTIRPATION OF A POLYPOUS TUMOUR OF THE LARYNX. BY PROFESSOR EHLMANN OF STRASBURG.

M. Ehrmann, Professor of the Faculty of Medicine at Strasburg, gives the following details of a case of this disease. As far as we are aware, it is the first in which such an operation has been performed, at least successfully :—

Caroline M., thirty-three years of age, the mother of two children, had always enjoyed excellent health till about four years ago, when, in the autumn of 1840, it was first observed by herself, and those around her, that there was a slight change in her voice, which became rough and hoarse.

This change was accompanied by no pain, or any difficulty in articulation or respiration. Subsequently there was nearly total aphonia; and, what was remarkable, this aphonia increased very much towards the termination of two pregnancies, and again diminished after delivery. After some time, quick respiration came to be accompanied by the sound of a valve opening and shutting alternately; and occasionally, during deglutition, some drops of liquid entered the larynx, and excited violent attacks of cough. During these attacks, the patient occasionally expectorated small portions of tissue, similar to the tumour which was subsequently removed by excision.

In the month of March, a sudden attack of dyspnoea supervened, which lasted for a short time, but recurred repeatedly with violence, and was instantly induced by the slightest cough or effort of vomiting. Tracheotomy was immediately proposed by M. E., but a delay of nearly two hours took place, from the entreaties of the friends of the patient; but the symptoms having increased during that time to an alarming extent, their consent was at length obtained.

The crico-thyroid membrane, the cricoid cartilage, and the two first rings of the trachea, were divided, and a tube introduced, with instant relief to the patient.

After forty-eight hours, an incision was made from opposite the os hyoides downwards, along the mesial line, to join the former incision. The two sides of the larynx were then separated by the knife, and the cavity being freed from the blood which had collected in it during the operation, the polypous excrescence was discovered attached to the left inferior ligament of the glottis, when it was seized with a pair of forceps, and excised at its base. The tumour was of the form of a small cauliflower, presenting here and there rounded and

fleshy granulations on its surface. Its precise measurements are not stated; but, from a figure which M. E. gives, it appears to have been about three-fourths of an inch in its longest, and half an inch in its shortest diameter.

After the operation, the edges of the wound were brought together, and the tracheotomy tube left in its place, from which it had not been removed during the operation. The tube was finally removed in two days; and, twenty-one days after the operation, the wound was entirely healed, and the patient made a perfect recovery, with this exception that the aphonia remained.

M. E. remarks that the hoarseness and roughness of voice are the first symptoms which show themselves in the course of this disease, amounting, after some time, to a complete loss of voice. The peculiar cough, similar to that of croup, generally accompanies these other symptoms. The sensation of a foreign body in the larynx during expectoration and deglutition, is sufficiently characteristic. Dyspnoea is an invariable symptom: it may commence insensibly, and increase gradually, or appear suddenly, accompanied by an insufferable feeling of suffocation. The only sign, however, which can be looked on as certain, is the expulsion, in coughing, of particles of the substance of the tumour; or when, by means of a small mirror, we can see the tumour engorged in the glottis, or feel it with the point of the finger.

EXTRACTION OF A FIVE-FRANC PIECE FROM THE GULLET BY MEANS OF THE
DOUBLE RING OF DE GRAEFE. BY M. JOBERT.

The patient was a stout man of 21—the five-franc piece had been in the gullet for two days. It could not be reached with the finger, but seemed to be fixed about the height of the cricoid cartilage, where there was considerable pain. The patient could swallow fluids, but not solids; the respiration was not impeded—there was no external swelling, and the voice was unaltered. M. Jobert at first introduced an elastic gum sound, of medium size, without being able to discover the piece of money. While the patient was in bed he had no better success with De Graefe's double ring, but having made the patient get up and seat himself in a chair, he introduced De Graefe's instrument anew, which, rubbing against the foreign body, immediately produced a kind of metallic sound. By persevering to push the whalebone downwards till the double ring passed beneath the piece of money, he was able, by withdrawing the instrument, to drag it into the pharynx, so that, on suddenly inclining the patient's head forwards, the piece fell on the floor. No bad symptom followed.—*Gazette Médicale de Paris*, 31st October 1846.

ON OBSCURATIONS OF THE CORNEA IN THEIR HISTOLOGICAL RELATIONS WITH RE-
FERENCE TO THE PRACTICE OF OPHTHALMIC SURGERY. BY DR SZOKALSKI.

The title of this article sufficiently indicates its object. The author shows, in the first place, that the cornea is composed of three membranes; the epithelium or conjunctival layer, the cornea proper, and the membrane of Demours. He examines the alterations which the elements of these tunics may undergo, and thence draws some practical conclusions. In nebular obscurations he has seen the epithelial cells smaller, and their layers more compact and adhering more intimately to the proper cornea. Complete staphyloma of the cornea lies principally in an abnormal development of the cells of the epithelium; the adherence of the iris to the cornea is not essential, for staphylomas are seen without this accompaniment. Conjunctival cerosis is an alteration of the epithelium analogous to that which constitutes pityriasis of the hairy scalp. The red points sometimes seen in inflammation of the cornea do not precede the development of vessels, as some authorities have taught. Inflammation of the substance of the cornea is the cause of the obscuration; the inflammation of the conjunctival layer, on the contrary, produces merely a development of phlyctenæ. The contained fluid examined under the microscope is limpid; sometimes in-

flammatory globules are discovered, particularly when the base of the phlyctena is turbid. In this case, there is a fibrinous deposit, which should be removed with a cataract-needle, for if it be left, the consequent suppuration is apt to involve the cornea itself. Pannus consists in a hypertrophy of the vessels, and a degeneration of the epithelium. Pterygium results from a hypertrophy of the submucous tissue which covers the sclerotic, and from the development of cellular tissue between the substance of the cornea and its epithelium.

The obscuration of the cornea, and its ulceration as a consequence of the section of the fifth pair of nerves, is not the result of a true inflammation; the author has never been able in corneas so altered, to discover either inflammatory globules or pus globules.

Inflammation assumes the same characters in the cornea as in other tissues; accumulation of blood in the vessels, granular exudation, inflammatory globules, pus. When, instead of passing into pus, the granular exudation becomes organised into filaments which unite the laminae of the cornea, leucoma is produced. The treatment recommended by the author is that in general use, and is not based on histological researches; we may merely remark, that Dr Szokalski enjoins salivation above all, and endeavours to produce that as rapidly as possible, by directing the mastication of pellitory root, horse-radish, &c., while the mercury is taken.

The membrane of Demours is not reflected over the anterior surface of the iris: the inflammation known by the name aquo-capsulitis, is merely a simultaneous inflammation of the iris and of the posterior surface of the cornea, and this coincidence depends on the fact, that the nerves and blood-vessels of these two parts are from a common source. The internal surface of the cornea is covered with a pavement-epithelium, the detached cells of which float in the aqueous humour, and constitute the globules which M. Donné regards as the proximate cause of muscae volitantes. The fibrous layer of the membrane of Demours is never altered; it is found deficient, where an abscess of the cornea has pierced into the anterior.—In "*Archiv. für Physiologische Heilkunde*," abridged as above in *Gazette Medicale de Paris*, 31 Octobre 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

M. BECQUEREL ON ACUTE HYDROCEPHALUS.

M. Becquerel, in the paper before us, uses many arguments to prove, what probably few will now deny, that there is a form of this disease which is quite independent of any inflammation of the brain or its membranes. He admits, of course, that the cases are rare. As an example he adduces the following:—"A child *ætat.* 3½, which had suffered for seven months from morbus coxiarius, but was in other respects healthy, was suddenly seized with convulsions, which continued for about six hours; near midnight the child fell into a comatose state, from which it never recovered, and died eleven hours after the commencement of the convulsions. On post-mortem examination, there was found no trace either of inflammation or of tubercle in the brain or its membranes. In the ventricles a considerable quantity of serum was effused, and the fornix and septum lucidum were destroyed by maceration; neither the lungs nor any other organ showed traces of disease." We think this case is far from confirming M. B.'s opinion, for we do not believe that the fornix and septum lucidum are ever destroyed by maceration. We are of opinion, with Charpentier, Legendre, and others, that this morbid appearance is always the result of tubercular inflammation; and, probably, had the microscope been employed in the foregoing case, evidence of inflammatory softening might have been obtained. M. B. points out that there is another variety of cases in which acute hydrocephalus occasionally supervenes; those, for example, in which

children are labouring under dropsy of some other cavity, or infiltration of serum into the tissue of another organ. The commencement of acute hydrocephalus, that is, the moment of its development or its first stage, is characterised by general convulsions varying in their intensity, lasting for a few minutes or for several hours; they are also generally accompanied by vomiting, or, at least, with some other symptom of a diminution in the cerebral energy. Death may either occur during this period, or another series of symptoms may ensue, constituting the second stage. The child then becomes comatose; sensation as well as sensibility are altogether destroyed, or at least impaired; the pupils are dilated, the limbs as if lifeless, and the excretions are passed involuntarily; this comatose state is sometimes interrupted by transient convulsions. Such was the train of symptoms observed by M. B. in four cases. M. B.'s treatment is the application of leeches behind the ears and in the course of the jugular veins, the exhibition of a drop or two of croton oil, with purgative enemata; calomel he considers too uncertain in its action; a blister is to be applied to the calf of each leg, and a third, if necessary, to the back of the neck; mercurial ointment may be rubbed into the head.—*Journal für Kinderkrankh.* Bd. iv. Hft. i.

It appears to us somewhat contradictory for M. B. to apply the treatment for inflammation to a disease which he denies to be inflammatory. There is no proof, however, that M. B.'s treatment is the best that could be adopted; for, out of the four cases, one only recovered.

HOOPING COUGH AND EXANTHEMA. By Dr VOLZ.

There are many reasons why whooping-cough should not be classed among the neuroses, but rather among the exanthemata. For instance, its epidemic nature, its contagious character, its attraction to children, its occurring only once in a lifetime, its relationship to measles, its regular progress, and its uninterrupted career in the individual, are all points in which it has as little resemblance to a catarrh as it has to convulsions, but which show a great similitude between whooping-cough and acute exanthemata. That it is seldom that any eruption is perceived in whooping-cough is no proof to the contrary, since, in the other epidemic exanthemata, cases frequently occur where there is no external eruption, but in which, nevertheless, the nature of the disease is unquestionable; and in others, again, the eruption is so transient that it is frequently not observed. Since the time of Autenrieth, the relationship between whooping-cough and the other acute epidemic contagious exanthemata has been suspected. Neumann (*Krankheit des Mensch*, Bd. i. s. 648) has seen whooping-cough accompanied by an eruption resembling measles in form, but having the colour of scarlatina, and appearing chiefly on the breast and arms. This eruption is rare, but Volz also has seen something of the same kind in whooping-cough. Besides the ordinary morbid appearances, Volz mentions certain changes on the mucous membrane of the intestinal canal; these are observed chiefly in the glands of that organ, and are of the exudative kind, and such as are considered by Rokitsky as peculiar to certain pathological processes, among which are included the exanthemata. If this peculiar alteration in the glandular apparatus of the intestinal mucous membrane is found not only in scarlatina, measles, cholera, and typhus, but also in gangrene, purulent deposits, &c., then it is evident that it is not the characteristic of a specific disease, but of some abnormal changes in the blood. Whooping-cough is therefore to be classed among the diseases produced by an abnormal change in the blood, and from the account of its occurrence as a contagious epidemic, and the numerous coincidences between it and scarlatina or measles, as already mentioned, it is improper that it should invariably be classed among the neuroses. With regard to the treatment, Volz found tannin and nitrate of silver each useful in a few cases in alleviating the violence and frequency of the paroxysms, but in general these remedies were of no avail; belladonna was found most uniformly of use.—*Hüser's Archiv*, Bd. iv. Hft. 3.

PRACTICAL REMARKS ON RENAL CALCULI—THEIR TENDENCY TO PRODUCE ABORTION;
AND ON NEPHROTOMY. BY M. RAYER.

Case.—A woman aged twenty-eight years, a cook, of good constitution, passed blood in the urine when twelve years old. She afterwards enjoyed perfect health, never suffered pains in the regions of the kidney or bladder, and the catamenia have always been regular. She married three years ago, and had a child at the full time a twelvemonth subsequently. After delivery, she commenced to feel pains in the loins; the urine became bloody from time to time; she experienced heat on passing water, and for the last year the urine has been purulent. In the meantime she became pregnant a second time, but aborted in six months. From this time the lumbar pains increased, a painful tumour formed in the abdomen; then came fever, emaciation, nausea, and weakness, and she entered the hospital. On admission, the urine was purulent, the pus occupying from a tenth to a fifteenth part of the liquid, when allowed to subside in a conical glass. On the right side of the abdomen, below the liver, there was a deep tumour the size of two fists, painful to the touch, and dull on percussion. This tumour, on a level with the umbilicus, and in the superior part of the right iliac fossa, appeared to be prolonged towards the corresponding flank. On looking at the back of the woman when seated, the right lumbar region was evidently prominent, and did not present the deep fold visible on the other side. Percussion over the prominent portion was dull, whereas on the opposite side it was clear. These conditions, joined to the preceding hæmaturia and actual pyorrhea, induced M. Rayer to consider the tumour as being formed of the right kidney, affected with calculous disease. The prognosis was not unfavourable, experience having taught him that these affections, so grave in appearance, do not prevent the patient from living several years with more or less suffering. Therapeutics do not present much hopes of relief in such cases; and after a few palliative remedies, the patient was dismissed. Since then, the tumour has increased, and has been accompanied with acute inflammatory symptoms. It is very possible suppuration is established, and hence it will be necessary to take a decided course of treatment, surgical or expectant, in the latter case trusting to a spontaneous opening.

- *Observations.*—M. Rayer has observed the disease to be more frequent in females than in males, and that it almost always produces abortion. Such happened in the above case, and it is important that individuals affected with pyelitis should be informed of the dangers likely to result from becoming mothers. A young girl, aged eighteen years, passed blood and pus in the urine from time to time. She had calculi in one kidney, but would marry, notwithstanding M. Rayer's advice to the contrary, and frequent abortions were the consequence. With regard to Nephrotomy, M. Rayer is only favourable to it in extreme cases, where an abscess is evident, and when the life of the patient is in danger from the spontaneous opening of the purulent pouch. He has caused it to be performed in one case, but the patient died phthisical. In our day the operation is abandoned, although perhaps erroneously. The pyelitic tumour, when left to nature, may open itself in different ways—1st, Externally in the lumbar region, which is the most favourable termination; 2d, Forwards, when, if it does not take place in the peritoneum, it may evacuate itself in the duodenum or colon; or by forming an abscess under the liver, pierce the diaphragm, enter the chest, and form a fistula through the walls of the thorax, of which M. Rayer has seen one case. All these terminations are serious, and induce death more or less quickly. Hence the importance of Nephrotomy, if practised in good time. We are destitute, however, of recent facts, sufficiently numerous and precise, to enable us to form a correct opinion on this important subject.—*Annales de Thérapeutique*, Septembre 1846.

ON THE CURABILITY OF HYPERTROPHY OF THE HEART. By M. ROSTAN.

When alluding to the case of a young woman affected with hypertrophy of the heart, M. Rostan stated that it was erroneous to suppose that this disease was beyond the resources of art. Experience has proved to him that it is radically curable in certain conditions where remedies can be tolerated, in proof of which he related the following case.

A blacksmith, aged twenty-seven years, robust, not fat, but powerfully muscular, with large shoulders, offering all the appearance of an athlete, entered some years ago, into the ward of M. Rostan, at the Hotel Dieu, with hypertrophy of the heart. This organ was of an enormous volume, raised the corresponding side of the thoracic cavity, presented extensive dulness, and all the incontestable signs of hypertrophy—dyspnoea was considerable. The occupation of this man had probably contributed, by the incessant action of the muscles of the arms and thorax, to exaggerate the hypertrophy. The patient, who possessed as much moral as physical force, was resolved to submit to any thing necessary for the cure of so serious a disorder. M. Rostan submitted him to the rigorous method of Valsalva and Albertini: repeated blood-lettings, general and local, water for drink, “bouillie” only for nutriment, and in quantity just sufficient to sustain life, and absolute immobility in bed, where the remedies were employed during three months. At the end of this time the amelioration was so well marked, that in a short time the patient might be considered as cured. The physical signs of hypertrophy had, in fact, completely disappeared, the dulness of the heart was limited to an extent almost normal, and the respiration was again free, and its rhythm natural. The patient was then better nourished by degrees, and he left the clinic in the most satisfactory state. M. Rostan greatly regretted that he had never seen this man since, in order to assure himself of the persistence of the cure, but there is every reason to believe that the benefit would be durable. This is not the only case which could be cited. Laennec has observed similar instances of cure, which have been confirmed by examination of the body after death. The heart in these individuals was found shrivelled, like an apple which has been submitted to the action of an air-pump, and afterwards exposed to the air—(comparison of Laennec.) This shrivelling of the surface was the consequence of the disappearance of the hypertrophy. M. Rostan himself has never verified this observation. The success of Valsalva’s treatment he believes to be dependent upon the individual being robust, plethoric, tolerant of repeated blood-lettings, and possessed of courage, resolution, and patience. Thus, it is not applicable to the young woman at present in the hospital, as she is thin, pale, and incapable of sustaining such a treatment.—*Annales de Thérapeutique*, Mai 1846.

CLINICAL NOTES TAKEN IN THE PARISIAN HOSPITALS.

CYSTITIS.—This affection, purulent or not, frequently follows paraplegia or spinal myelitis. Cystitis causing paralysis is seen more rarely. M. Sanson presented in himself an example of this, and another may now be seen in one of M. Rayer’s wards at La Charité. It is the case of a young girl, aged fifteen years, of feeble constitution, who had been for some time treated for a cystitis, at first mucous, then purulent, and who became paralytic in the hospital itself, under the eyes, so to speak, of the physician. An antiphlogistic treatment, continued between two and three months, greatly diminished the cystitis and paraplegia, and she is now nearly cured. M. Rayer attaches great value to this case, as indicating the “irradiation” of the inflammatory action of the urinary apparatus to the spinal cord.

THE URINE IN ASCITES.—In ascites, dependent on lesion of the liver, the urine is always more or less deeply coloured; whilst in renal ascites (Bright’s dis-

ease or otherwise) the urine is white and colourless—(*Rayer*.) This characteristic condition of urine in ascites was perfectly known to the Arabian physicians.

PAIN IN THE SIDE, in thoracic inflammations, generally corresponds, according to the indication of the patient, not to the precise point of the organ affected, but to one a little below it,—that is, the painful sensation experienced is in a situation inferior to the lesion. When local evacuations of blood, therefore, are ordered, or blisters, they should be directed to be applied a little higher than the painful part—(*Rostan*.) This precision is not without importance in certain cases, for it may happen that, following the indication of the patient, remedies are often applied to the abdomen, when the disease is at the lower part of the chest.

TINCTURE OF CANTHARIDES IN BRIGHT'S DISEASE.—This medicine, in the dose of from 15 to 20 drops, “*par pot de tisane*,” combined with the use of decoction of bark and chalybeates, is the remedy which has given the best results in the treatment of albuminous nephritis.—(*Bright's Disease*.) Many cases have already been cured by this treatment.—(*Rayer*.)

PARALYSIS OF THE SERRATUS MAGNUS MUSCLE.—This singular affection is not so obstinate as has been supposed. A young girl labouring under it, whom M. Rayer had treated, two or three years previously, has lately returned to the hospital. The paralysis is much diminished. It was again treated with tartar-emetic ointment, rubbed over the scapula, and the cure has been complete. Another case we have seen under M. Jobert, at St Louis, has been greatly benefited by repeated frictions with croton oil.

TUBERCLES AND PREGNANCY.—It is commonly supposed that pregnancy suspends the march of phthisis pulmonalis, in order to hasten its more fatal termination afterwards. These propositions are very doubtful.—(*Rostan*.)

BRIGHT'S DISEASE AND PREGNANCY.—When a pregnant woman has anasarca, especially in the face or eyelids, or has ascites, examine her urine: and if you find it to be albuminous, abortion may be anticipated, and frequently eclampsia, either before or after the uterine discharge.—(*Rayer*.)

ACETATE OF AMMONIA IN CHRONIC DISEASES OF THE CHEST.—In tubercular affections of the lung, with dyspnoea; in old bronchial catarrhs, with or without pulmonary emphysema; in organic diseases of the heart and aorta, with or without anasarca, with or without pulmonary lesion—the acetate of ammonia, in the dose of four grains a day, in tisane, produces excellent effects. It diminishes the arterial circulation and dyspnoea, procures calm and sleep, removes the pulmonary emphysema, (?) and ameliorates the state of the bronchial mucous membrane.—(*Guérard*.)

OVARIAN CYSTS.—There is a spontaneous termination to hydropic cysts of the ovary, even when their volume is not considerable, which has not been sufficiently pointed out—we speak of their rupture into the peritoneum. A case of this kind, in a young female, lately presented itself in the Hotel Dieu, in the ward of M. Guérard. The tumour was multilocular, the cysts not communicating with one another—one of these, about the size of a fist, burst, by excessive distension of its walls, and without the intervention of any external cause. Death followed in a few days. The same physician has observed a similar case. The question arises, should we, at an early period, attack these tumours surgically, or otherwise? The disease, as may be seen, is equally grave, whether they be treated or abandoned to themselves. M. Guérard is assured that we may often know, *a priori*, whether an abdominal cyst be

Case 2.

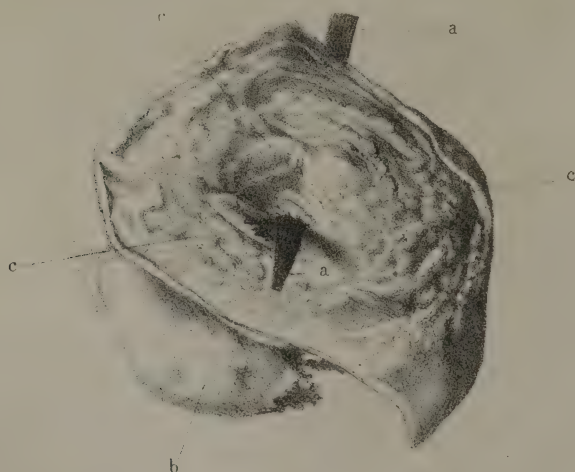
FIG. 1

Tumour attached to posterior lip, Anterior lip ulcerated



FIG. 2.

Excised Cervix Uteri & Tumour seen from above.



Case I.

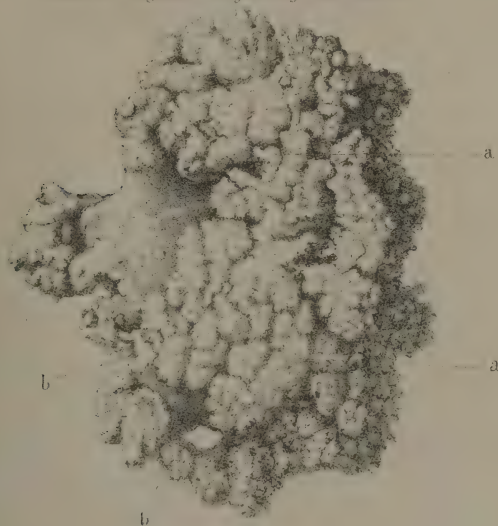
FIG. 1

Excised Cervix Uteri & attached Tumour seen from above



FIG. 2

Lower or Vaginal surface of the Tumour.



simple or multiple, according to the mode of fluctuation circumscribed in the latter case to a small space, by the presence of divisions in the cyst, and in the former communicable at a distance, and to all the parts of the tumour.

PSOITIS.—What distinguishes psaitis, or inflammation of the sheath of the psoas muscle, from inflammation of the cellular tissue in the internal iliac fossa, is the involuntary flexion in the former of the thigh upon the abdomen. This symptom was characteristic in a patient affected with psaitis in the ward of M. Rayer, amidst others labouring under pelvic abscess. Sometimes the two diseases co-exist. The first is perhaps less frequent, but more grave.—*Annales de Thérapeutique*, July and August 1846.

MIDWIFERY AND DISEASES PECULIAR TO WOMEN.

THREE CASES OF EXCISION OF THE CERVIX UTERI FOR CARCINOMATOUS DISEASE.
By J. Y. SIMPSON, M.D., Professor of Midwifery in the University of Edinburgh.

Last year Dr Simpson read a paper to the Medico-Chirurgical Society of Edinburgh, stating the results of his practice in eight cases of excision of the cervix uteri for carcinomatous and other diseases of that part. The same communication has been latterly laid before the Dublin Obstetric Society, and published in the October number of the *Dublin Medical Journal*. We shall give an abridged view of the cases and remarks as far as they bear upon the subject of cancer.

CASE I.—*Cauliflower Excrescence, accompanied with much discharge and debility; Excision; Cure; Patient has since borne three living children.*—The patient, aged 33, weaned her fifth child in June 1839. For about a month previous to that date, and during several months subsequently, there was a constant slight menorrhagic discharge present. She aborted in October, and afterwards the reddish vaginal discharge increased, was often mixed with coagula of blood, and had an offensive smell. At times it lost so much of its red tint as to appear comparatively pale and watery. For some months before Dr S. saw the patient, the discharge was so profuse as to require the daily use of several napkins. Twice there occurred alarming hemorrhage without any obvious exciting cause. There was no local uterine pain or uneasiness. By the time Dr S. first visited the patient with Dr Lewins, in May 1840 (eleven months after the discharge first appeared), she had become greatly weakened and reduced. Her face was pale and anemic, and she was occasionally obliged to keep her bed, in consequence of debility and exhaustion. On making a vaginal examination, a tumour, the size of a small pear, was found attached to the whole posterior lip of the os uteri; its basis of attachment was very broad: its surface was of a strawberry colour, rough, granulated, and fissured; it was insensible to touch; but the superficial vessels upon it bled freely under slight pressure or abrasion with the finger or speculum.

On the 25th of May 1840, the whole vaginal portion of the cervix uteri was excised, with the tumour attached to it. In order to secure its complete removal, Dr Simpson divided the cervix as high up as the reflection of the vagina would permit, and even removed at one point a line or two of the reflected mucous membrane of that part. The excrescence measured $2\frac{3}{4}$ inches at its broadest part, and $2\frac{1}{4}$ in its greatest depth (see Plate I. Figs. 1, 2). On examination, microscopically, it was found to present a nucleolated cellular structure, without condyloid or spindle-shaped bodies.

The patient recovered rapidly from the operation. The morbid discharge, from which she suffered so much, ceased from the date of the removal of the tumour.

Since the date of the operation, May 22d, 1840, the patient has been three times pregnant, and given birth to three children, all of them now alive and

well, viz. the first, born on the 11th of February 1841, the second on the 18th of May 1843, and the third on the 19th of April 1845. She continues to enjoy perfect health.

CASE II.—*Carcinoma Fasciculatum and Ulceration of Cervix Uteri; severe Hemorrhage; Excision; Cure.*—The patient, aged 40, had been eight years a widow. She had been previously married eleven years, and borne five living children. After suffering for some time under considerable leucorrhœa and pain in the back, the symptoms increased much in intensity about the beginning of August 1843. The discharge then assumed a more watery character, and imparted an excoriating burning feeling to the parts as it passed. It was augmented very greatly in quantity, especially in the erect posture, and was generally mixed with blood under the slight straining efforts required to empty the bladder and rectum. After this watery “boiling discharge” (as the patient herself termed it) had lasted profusely for about a fortnight, severe hemorrhage came on. It was kept under imperfect restraint by the supine posture, &c., for the next few days, when, at the return of the normal catamenial period, great flooding supervened, and, in despite of the use of cold astringents, the plug, and other active and appropriate measures, much blood was lost. The patient, though naturally a very strong and robust woman, was, in consequence, soon reduced to such an extreme state of anemic weakness and exhaustion, that she required to be lifted with sheets when they ventured, from time to time, to get her bed made dry, and she became sick and faint whenever her head was attempted to be raised. Dr S. saw her at this time, with Dr Wilson and other practitioners. On cautiously removing the vaginal plug, he found the posterior lip of the os uteri enlarged, indurated, and roughened, and the surface of it and of the anterior lip the seat of ulceration of an apparently malignant kind. The base, however, of the cervix appeared so far free from disease as to allow the possibility of the excision of the parts above the line of the morbid structure. Two days afterwards, viz., on the 13th of September, he accordingly excised the whole cervix uteri.

The excised mass measured about an inch and a half in diameter at its base, and the incision through the cervix uteri, passed, apparently at all points, through a healthy structure. The posterior lip of the cervix was enlarged, in the form of a tumour, to the size of a pigeon’s egg, and roughish and tuberculated upon its surface (see Plate II. Figs. 1, 2). The base of the tumour found upon the posterior lip, and some part of the unenlarged anterior lip, were the seat of ulceration, marked by an acute sharp edge. The diseased structure of the posterior lip slightly passed the angle or commissure of the left side, and partially invaded the anterior lip. Its structure was found to present, in a well-marked degree, all the usual microscopic and anatomical characters of Müller’s *Carcinoma fasciculatum*.

After the excision of the diseased structures the lumbar pains and local watery and hemorrhagic discharges entirely ceased. Pus was secreted for some days from the surface of the wound. The patient rallied so speedily in health and strength, that within a fortnight she was able to be taken into the garden. For two months subsequently she did not menstruate, but afterwards the catamenial discharge occurred regularly, accompanied with dysmenorrheal symptoms. A year after the operation, Dr S. found her in excellent health, busily employed in active and fatiguing duties, and again ruddy and florid in her complexion. On examination, the os uteri felt firm and puckered, like the cicatrix of a common stump upon a small scale. On the 15th of August 1846, she reported herself as continuing in the best health.

CASE III.—*Carcinoma Reticulare of Cervix and great Hemorrhage: Excision; Return of the disease eight months after the operation, and death four months subsequently.*—The carcinomatous tumour removed in this case was of an oval form, and nearly the size of a small peach. It was slightly irregular and lobulated on its inferior or free surface, and on more narrow

examination this surface presented a small granulated appearance. The line of incision by which it was removed seemed to pass through healthy tissue.

On inspecting the body of the patient after death, the site of the excised cervix uteri, the upper portion of the vagina, and the cellular substance intervening between these points and the bladder and rectum, were the seat of pultaceous softening and ulceration, but there was little or no thickening or actual morbid deposit in these parts : there were no decided marks of malignant structure in the tissues of the part. From the softened condition of the affected textures, it was found impossible to ascertain whether the degeneration and ulceration extended, or not, through the recto-vaginal septum into the rectum itself.

In performing the excision of the cervix uteri, in the three preceding instances, and in the other cases in which he has operated, Dr Simpson has proceeded on the following plan :—Having fixed one or two vulsella into the outer or vaginal side of the diseased cervix, as high as it was possible to insert them, and, by the purchase which they afforded, he has gradually and cautiously dragged this part down in the lines respectively of the axis of the pelvic brim, cavity, and outlet, till it appeared so far beyond the vulva as to allow him to cut through the base of the protruding cervix. In one or two cases a knife was used in making the incisions. But in consequence of the powerful retraction under which the cervix uteri is placed during the operation, it was difficult, or indeed impossible, to make the incision in this way so equable and perfect as to remove with certainty all the diseased part. After a partial cut or two the uterus is strongly retracted at the points of incision, and the remainder of the operation requires to be finished with the line of incision thus rendered irregular and confused. A pair of large, curved, blunt-pointed scissors, such as were used in this operation by Oslander and Dupuytren, is in this respect preferable. We are enabled by them to surround and embrace the whole cervix at once ; and having cautiously and carefully adjusted their edges to the very points which we wish to divide, and thus calculated, at this preliminary step, the exact limits of the incision, we may then immediately complete the amputation of the part, by one or two strong and rapid strokes of the instrument. The blades must be placed around the cervix, *above* the line of the teeth of the vulsellum ; and then our object is, as it were, to cut out the vulsellum along with the whole inferior and diseased part of the cervix, in which it is fixed. The operation is much facilitated by the labia being strongly pressed aside by broad copper spatulæ.

Dr Simpson has always placed his patients upon the face, the body being situated across the bed, and the lower extremities hanging over it, as in the operation for hemorrhoids. We are thus enabled to make our incision through the cervix uteri from behind forwards, instead of from before backwards,—a matter of no small moment. For if we cut in this latter direction, viz. from *before backwards*, we would sometimes run a great danger of opening into the peritonæum, which stretches downwards so much more behind than in front of the cervix uteri, and offers a very thin wall of partition between the cavity of the vagina and the cavity of the abdomen. Latterly, he has found the first portion of the operation, namely, the seizure and traction of the cervix uteri, much facilitated by using a very large and strong vulsellum, made with the common loose joint of the obstetric forceps, instead of the usual fixed pivot or scissors joint. With the common scissors-jointed vulsellum, whilst we are intent on fixing the teeth of one blade in a proper situation, the teeth of the other blade are always apt to become entangled in the tumour or walls of the vagina itself, and thus impede and embarrass the operator. But with the modification of the vulsellum alluded to, this difficulty is avoided, for the individual blades are introduced, adjusted, and fixed, separately and successively ; and then, afterwards, they are easily united together for further use. Besides in this way, we far more readily effect what are the two principal secrets in the operation, viz. 1st, We fix both blades of the instrument, and more especially

that corresponding to the diseased lip, as high upon the cervix, and as near its line of reflection upon the roof of the vagina as possible; and 2ndly, by making our line of incision immediately above the hold of the vulsellum (as if our object were to cut out that instrument and the part which it embraces), we secure this important point, that the incision which we make is more likely, than if we followed any other plan, to pass through a stratum of healthy tissue, as we thus inevitably remove the whole vaginal portion of the cervix uteri, and the diseased structure of which it is the seat. In thus attempting to insert the vulsellum as high as possible in the cervix, we will succeed far better by guiding it directly to the point required by the finger and the sense of touch, than by attempting to direct it by the speculum and the sense of sight. In fact, if the cervix is, as generally happens, at all much increased in size, it is, of necessity, utterly impossible to see, with any speculum, the part in which the teeth of the vulsellum should be fixed,—that part lying much higher than the sphere of vision.

The forms of disease in which Dr S. deems it justifiable to avail ourselves of the aid of this operation (supposing no contra-indication to be present), are, in his opinion principally:—

1st. Great morbid hypertrophy, by elongation, of the vaginal portion of the cervix uteri. He has operated successfully in two such cases.

2nd. Corroding ulcer, when limited to the lips of the cervix, and pathologically identical with the form of lupus or malignant ulcer so well known on the face; and

3rd. Circumscribed and local forms of carcinomatous disease or excrescence, of the lips and lower segment of the cervix uteri.

In forty-nine instances out of every fifty in which we find the uterus or any part of it, the seat of true carcinomatous deposit, Dr Simpson believes the disease will inevitably lead, sooner or later, to a fatal termination. The rapidity of its march is various, and may deceive an incautious observer by its duration. He has known death occur a few weeks after the disease first attracted the special attention of the patient; and had occasion to watch the course of a case, where the patient dragged on a miserable existence for seven years after the first discovery of the malady by the late Dr Hamilton. But whilst thus fatal in almost every instance, there are still some rare varieties or forms of carcinoma uteri, that are apparently within the just range of surgical treatment. And *one* condition favouring this is the generally admitted fact, that the disease almost always begins in, and, for a time, is limited to the structure of the lips and cervix of the uterus. Another circumstance is that, for the most part, carcinoma uteri is primary and possessed of comparatively slight tendency to contaminate the system generally. In these two important respects, therefore, the disease presents conditions favourable for surgical interference, although in order that a case may offer any chance of operative success, several conditions seem requisite:—1st, The disease must be in an early stage. 2nd, The morbid structure must be strictly limited to the lip or lips of the cervix, or at all events be *distinctly* situated below the line of reflection of the vagina upon the cervix uteri.

In actual practice, however, it rarely indeed happens that the above combination of circumstances is met with, because, in truth, the medical attendant is very seldom called in till the disease is so far advanced as to have passed the limits in question. In fact cancer uteri generally proceeds throughout its first stage of deposition and induration with such slow and stealthy steps, that the attention of the patient is not awakened to its presence by any particular local symptoms; and it is commonly not till the malady is advancing or has advanced towards its higher states of morbid development and disintegration, that a sudden and unaccountable loss of blood, or the unexpected appearance of some purulent or sanious discharge, or the supervention of uterine pain, first rouses the lurking suspicions of the sufferer to the nature of the fearful fate that is impending over her.

Dr S. conceives that future inquiry will in all probability prove that there are some varieties, types, or *species* of carcinoma of the cervix uteri which are much more within the pale of surgical treatment than others. But this last most important subject of inquiry is confessedly a department of uterine pathology to which no labourer has as yet directed his attention. In conclusion, he thus recapitulates the principal pathological and practical data which the three cases he has described seem to supply:—"In the first case which I have described, the excised morbid mass had all the usual characters of cauliflower excrescence, a disease which, in its ultimate course, always takes on malignant action, whatever difference of opinion may exist as to its pathological nature in the incipient stages. The tumour removed from the second patient was an example, as I have already stated, of Muller's *carcinoma fasciculatum*; and that from the third, was an equally characteristic specimen of the *carcinoma reticulare* of the same author. Every pathologist will, I believe, readily grant that these are forms of malignant structure, regarding the true carcinomatous nature of which there can be no rational doubt. All the three patients were extremely sunk, and prostrated by the attendant discharges, before I had recourse to the excision of the cervix uteri and the morbid excrescences attached to it. All the three were so far benefited by the operation as to recover their usual health and strength, and be again able for the duties of life. But in the last case the disease recurred after eight months of comparative health; and after fourteen months it terminated fatally. The other two patients still remain in the enjoyment of perfect health, although in one instance upwards of six, and in the other above three years have elapsed since the period of the operation. And, as I have already stated, the first of the patients has now conceived, borne, and nursed three children, since the date of the excision of the diseased parts, a sufficient proof both of the completeness of her own recovery, and of the safety of the operation, so far as regards the primary and most important of the physiological actions of the organ operated upon."

EXPLANATION OF THE PLATES.

PLATE I. Two figures of the excised cervix uteri and attached tumour in Case I.

Figure 1. *a a* Probe passed through the cavity of the os and cervix uteri; *b* anterior lip of the uterus; *c* posterior lip; *d d* line of incision by which the cervix uteri was removed; *e e e* rough surface of the tumour attached to the posterior lip.

Figure 2. *a a* Under surface of the tumour; *b b* portions lacerated by the vulsellum.

PLATE II. Two figures of the excised cervix uteri and attached tumour in Case II.

Figure 1. *a a* Piece of whalebone passed through the cavity of the os and cervix uteri; *b b* tumour attached to the posterior lip; *c* anterior lip of cervix uteri; *d d* edges of the anterior lip.

Figure 2. *a a* Piece of whalebone passed through the cavity of the os and cervix uteri; *b* tumour attached to the posterior lip; *c c* line of incision by which the cervix uteri was removed.

ON GRANULATIONS OF THE UTERINE CAVITY.

We extract a few observations on this subject from a paper in a recent number of the "Annales de Thérapeutique." The author sets out with the remark that this disease is altogether new at Paris, that it is engaging much attention, and that M. Recamier has already invented a little arsenal of means for overcoming it. This apparatus consist of a long metallic blade, very strong, of the breadth of the nail of the little finger, not sharp, which is introduced into the uterine cavity as a scraper (*à l'aide de laquelle il en opère le raclage*); 2, of a curved hollow sound, or rather uterine catheter, in the form of the arc of

a circle, which is introduced into the uterus, and through the tube of which he passes another sound, larger or smaller according to circumstances, or even the scraping blade; 3, metallic caustic holders to cauterise the interior of the uterus. Our author, however, asks first if there be evidence of the real existence of uterine granulations—first there is the evidence of analogy, since they manifestly occur on the os tincæ, and on the cervix uteri. Again M. Robert affirms that, by means of Recamier's apparatus, he has scraped a bloody matter from the interior of the uterus, which appeared to him to be the result of a thickened and granular state of the mucous membrane; finally, M. Jobert assures us that he has satisfied himself of the existence of this granular state after death. Our author in the end concludes that, though this evidence is strong, it still wants something of being complete. As to the signs of the presence of this disease during life, it appears to be inferred that it exists when a woman suffers from copious leucorrhœa with hemorrhage from time to time, and these symptoms resist the ordinary means of cure, even when the cervix uteri is not so affected—but still more if it be affected. In this last case, that is, if there be granulations on the cervix, these are to be cauterised in the first place, and if the discharge still continues, it is then to be ascribed to the like affection of the interior of the uterus, and it also is to be cauterised. The following is the mode in which MM. Recamier and Robert practise the scraping of the interior of the uterus. The woman is placed as for examination by the speculum, or she is laid on her side, as in the operation for fistula *in ano*, and then the blade is introduced into the cervix, aided by the finger or with the help of the speculum. The next step is to depress the fundus of the uterus with the hand in the hypogastrium, and push the blade into the cavity, using the requisite degree of force. As soon as the blade is introduced, it is felt easily in the hypogastrium. Then the dimensions, the resistance, the sensibility of the organ are examined into, and now the blade is made to act circularly, as one would scrape a vessel covered with incrustations. Our author here remarks that this operation goes on in the dark, that pain is caused, and a discharge of blood, while the scraped-off substances are removed—and means must be taken to guard against intense inflammatory reaction. The scraping is to be resorted to again, if it seems necessary; and after some time has elapsed, the cavity is to be cauterised, by making the caustic holder pass round it in a circular manner. Our author then describes a cauterisation on this plan, which he had seen M. Robert perform at the Hospital Beaujon, in which the nitrate seems to have been applied with the least possible reserve, by means of an ordinary strong urethral caustic-holder. According to the patrons of this method of practice, the scraping in young females, subject to abundant white and red discharges, and not benefited by ordinary treatment, diminishes the frequency of the discharge, and the cauterisations complete the cure. Our author professes to offer no decided opinion on the merits of this treatment, but asks how it happens that affections of the uterus, attended with discharges, are so generally cured by simpler means, and particularly by applications merely to the cervix uteri, if so severe a mode of treatment be really necessary. Referring to the number of cases of this kind successfully treated by Jobert at St. Louis, he asks how it should happen that, out of so large a number of cases there should not be many incurable without direct application to the interior of the uterus; among those cases he says there must either have been cases of intra-uterine granulations, or there must have been none; if there were, it must be inferred that applications to the cervix alone suffice for the cure; and if there were none, then must intra-uterine granulation be a very rare case—a case of exception. He concludes with saying, that on consulting many hospital surgeons of much experience in those complaints, and, in particular, M. Jobert, he finds it to be the general opinion, that in the actual state of our knowledge, the diagnosis of intra-uterine granulation is impracticable.—*Annales de Thérapeutique*, Aout 1846.

TWO CASES OF OOPHORITIS TERMINATING IN SUPPURATION, THE FORMATION OF FISTULÆ AND TRICHIASIS. By DR C. H. HEINRICH, Bonn.

A woman, the mother of eleven children, had, till within a few years, enjoyed good health. After the birth of the eighth child she was seized with what her medical attendant believed to be inflammation of the liver, but from which she speedily recovered. Three years ago, five weeks after the birth of her last child, a hard red swelling appeared in the lower part of the abdomen, which extended from the *linea alba* close to the external parts of generation, and exhibited all the well known marks of an abscess. After the application of poultices, it burst and gave vent to a large quantity of matter. The wound showed no inclination to heal, but on the contrary rather increased in size, and there was a continuous flow from it of a greenish yellow, greasy, highly offensive fluid somewhat resembling oil. At times the patient complained for several days in succession of severe pain, which she compared to that of a raw surface pricked with bristles. These paroxysms of pain were followed by tufts of hair appearing at the wound, which on being seized and drawn out, conveyed to the patient the sensation as if they came from the upper, not the under part of the abscess. Variable appetite and occasional constipation ensued, otherwise the health of the patient was satisfactory, and the menses continued regular. When first seen by the author, he found the under half of the abdomen, from below the umbilicus close to the entrance of the vagina, projecting in the shape of a half sphere. The swelling was firm, somewhat elastic, and presented the lobulated feel of a steatomatous mass; the neighbouring veins were full and congested. The opening admitted the point of the little finger. The discharge, for some days previously, had somewhat diminished, and assumed a tougher character; the appetite had also increased. The local disease appeared to have little affected the general health of the patient, and she still continues in the same state.

In regard to the discharge of hair, it is to be remarked that this only takes place occasionally, after longer or shorter intervals. At the commencement the tufts were long and thick, afterwards they became shorter. One of these tufts, discharged a year and a half after the commencement of the complaint, was sent to the author for examination, and presented the appearance of a dark brown, firm and polished ball of the size of an apple (*Bors dorfer apfel*). The odour given out by this mass in its fresh state was quite peculiar and truly horrible (*wahrhaft shrecklich*). When examined by the microscope, it was evident it was not a scybalous mass, as its mere appearance would have led one to suppose; no remains of indigested food were found in it, nor any of those various colossal crystalline masses, which the author says he has never found wanting in the *fæces* of a healthy individual. This being the case, it was supposed that the mass might contain either some parts of the remains of a *fœtus*, or, that it was a case of extra-uterine pregnancy, in which the body of the child was thus expelled in a state of putrefaction. On a closer examination, however, these opinions appeared untenable. On the one hand, no trace of either bone or cartilage could be discovered in the mass, and on the other, there was positive proof to the contrary in the length of the hairs. The mass was made up of a number of reddish-brown hairs extending from a half to an inch and a half in length, and united together by means of a tallow-like fetid fat, into an intricate felt-like mass, with difficulty divisible by the scalpel. On comparing them microscopically with the hairs of the head, they were found to have a larger diameter; the shaft was also rougher, and covered with knots, resembling small masses of fat. The roots, moreover, instead of exhibiting the usual bulbous form, terminated in three or four fibrillæ.

These negative results, taken in connexion with the general state of the patient, rendered it highly probably that the case was one of inflammation of the right ovary, occurring after the last delivery, and terminating in suppuration. The continuance of the discharge for so many years, and its character, would

lead further to the supposition, that the inflammatory process had induced cystic degeneration of the organ affected, or perhaps of both ovaries.

The following case, resembling the above in many of its features, was communicated to the author by Dr Siebold of Darmstadt :—

A peasant aged thirty-six, mother of two children, had been seized with an affection which, from its description, must have been inflammation of the right ovary, which terminated in abscess, and in the evacuation of pus. On examining the abdomen, Dr S. found a fistulous opening, two inches below the umbilicus. After enlarging it by means of a sponge tent, he extracted from it a thick tuft of long brown hair, adhering together by means of a substance resembling spermaceti. On examining these hairs with the naked eye no bulb was perceptible. With the view of closing the wound, he touched the edges with caustic, and used a mild astringent injection. As this produced no effect, he left the farther progress of the case to nature. A double milk tooth was subsequently evacuated with the pus. The woman having again become pregnant, the medical man in attendance took advantage of the high position of the uterus, to sound the depth of the fistula. On this occasion a second milk tooth was evacuated, and likewise a hard lardaceous looking mass, having very much the size and form of a half apple, and which, on being cut up and examined, was found to contain two double milk teeth : the one was large, well formed, and possessed of a very long root, the other was smaller and exhibited a blackish appearance externally. The woman was delivered of a healthy boy at the usual period, and nothing particular occurred beyond a slight flooding, after the delivery of the placenta. The fistula continued after the birth of the child.

The cases first related are interesting in two points of view ; 1st, as regards the termination of the inflammatory affection of the ovaries, and 2d, as offering additional examples of the fact, that the ovaries may be the seat of tumours containing fat, hair, and even teeth. Many similar examples have been related ; but in many of these there has been a doubt whether the substances evacuated were not the remains of a foetus ; in the cases now given we have already shown there was little room for any such suspicion. Throwing aside those, then, in which the true nature of the case may be doubtful, the fact remains, that in certain instances the internal genital organs—to wit, the ovaries—possess the power, without any previous impregnation, to generate some of the lower organs, such as hair and teeth. It would appear that this anomalous power of formation is preceded and caused by the transformation of the glandular substance into fatty cysts. These cysts, according to Rokitsansky, are frequently developed from a Graafian follicle, and usually in the prime of life, seldom earlier. As is well known, an unnatural formation of hair takes place in many other parts of the animal body ; and it would appear that this is usually allied with an unnatural deposition of fat ; according to J. Müller, indeed, those tumours containing hair are nothing else than peculiar fatty cysts. The structure of ovarian cysts containing hair and teeth, was first microscopically examined by Kohlrausch, but he makes no mention of anything abnormal in the development of those parts generated in this unusual state. He expressly states that the hair was throughout perfectly normal. Our author's cases were, in this respect, different, as instead of bulbs, a mere indication of these existed. In connection with this subject, a case has been detailed by Otto, in which the left ovary, of the size of a fist, was found degenerated, and entirely filled with soft yellow fat, and in which a large quantity of hair was impacted ; the latter, on being measured, was found to be several inches long, of a light brown colour, and destitute of bulbs, while that on the surface of the body was nearly black. Similar observations by Mayer, Andral, and Autenrieth, show that one of the most striking anomalies in hair generated in the ovaries is this want of bulbous roots.

Autenrieth has been led to conclude, from two cases, that hair alone is ge-

nerated in the fat cells of such ulterior organizations, but never bones or teeth ; the latter are only found in cells containing either a brown clear gelatine, or a tough whitish mucus, in a state of commencing coagulation.

If this view be correct, and much may be said in support of it, it follows that of the two cases just detailed, the first was one merely of fatty cystic degeneration, the other, one of complete cystic formation.

The above cases further teach us, that such fistulous openings following oophorites, are to be regarded as natural exits, and as such should not be interfered with. Their closure might occasion a rapid increase in the size of the swelling and other accidents.—*Zeitschrift für Rationelle Medizin V. Bund I. Heft.*

CASE OF CONGENITAL PROTRUSION OF THE LIVER THROUGH THE UMBILICAL RING. By Dr POCHHAMMER.

Dr P. was sent for by a midwife, to examine the child immediately after birth, in consequence of something abnormal in its external appearance. On examination he found the remains of the umbilical cord distended into a swelling of the size of a goose egg, protruding through, and occupying the seat of the umbilical ring, which was very much dilated. Finding himself unable to push the contents of the swelling into the abdomen, Dr P. divided the external skin through its whole extent, when, to his astonishment, he found the liver, with a well furnished gall bladder, lying therein. He now carefully dissected off the skin which adhered to the circumference, replaced the liver, pushing it as far to the right side as possible, and put a ligature close round the base of the cord. The result was most favourable ; the remains of the cord sphacelated, dropt off, and left a smooth cicatrix over the ring. The child is now a year old, strong and healthy. The ring still remains dilated to the extent of a crown piece, but the contents of the abdomen are easily retained by means of a simple circular bandage.—*Wochenschrift für die gesammte Heilkunde*, February 28, 1846.

POLYPUS OF THE UTERUS. By Professor MONTGOMERY.

In the *Dublin Journal* for August of the present year, there is a long communication on polypus uteri illustrated by twenty cases, by Professor Montgomery ; all of which, except one, terminated successfully by ligature, torsion, or excision. With the exception of a solitary instance, there is nothing new or interesting in the communication, except the following case, which we think worthy of notice :—"A practitioner of great experience was called to a soldier's wife, who had been in strong labour for several hours, without any advance of what was supposed to be the head of the child. On examination, however, it was found that she was not with child, and that the tumour presenting in the vagina was a very large and a very firm polypus, of which the uterus was endeavouring to get rid by violent expulsive contractions. It was gradually forced lower down ; the gentleman who was in attendance on the patient introduced his hand, and twisted the polypus several times round, by which it was soon detached from the uterus, carrying along with it a portion of the organ itself ; a profuse hemorrhage then commenced, and the woman's life was with difficulty preserved."

ON INFLAMMATORY ULCERATION OF THE CERVIX UTERI DURING PREGNANCY, AND ON ITS INFLUENCE AS A CAUSE OF ABORTION. By J. HENRY BENNETT, M.D.

Dr Bennett's attention was first drawn to inflammatory ulceration of the cervix uteri in pregnant females by M. Boys de Loury, one of the physicians of Saint Lazare, an hospital-prison in Paris, where women of the town found labouring under syphilis are confined and treated. The speculum being used with all the patients, as a means of exploration (with those who are pregnant as well as with those who are not), M. Boys de Loury thus discovered that ulcera-

tive inflammation of the cervix is not uncommon in pregnant women, and that, when left to itself, it frequently occasions abortion. His views were briefly narrated, in 1843, by one of his house-physicians, M. H. Costilhes, in a thesis sustained before the Paris Faculty of Medicine. M. Costilhes' cursory notice is the only one on the subject that has hitherto appeared, to his knowledge, in any language. Dr Bennett has found that this form of uterine disease is by no means uncommon, that it plays a very important part in laborious pregnancies, and that it is a very frequent cause of abortion.

Local symptoms.—The local symptoms of inflammatory ulceration of the uterine neck, existing during pregnancy, are continued pain in the lower part of the back ; in the lower hypogastric region, immediately above and behind the pelvis, and in the ovarian regions ; a mucoso-purulent vaginal discharge ; and a sensation of great pelvic weight and bearing down. To these we may add the data furnished by the touch, and by instrumental examination, which we will first analyse.

The sensation afforded to the touch differs considerably from that which is perceived, under similar circumstances, in a non-pregnant female. As is well known to all accoucheurs, the healthy uterine neck in the pregnant female undergoes successive changes as pregnancy advances, and as the uterus increases in size. On the other hand, it will be remembered that increased volume in the cervix, an open state of the os, and retroversion, coupled with a velvety surface, are the principal characteristic indications, to the touch, of inflammatory ulceration of the uterine neck in the non-pregnant state.

This partial similitude between the changes appreciable to the touch produced in the cervix by inflammatory ulceration and by pregnancy, renders it much more difficult thus to recognise ulceration in its milder form, and in the early months of pregnancy, in pregnant than in non-pregnant women. The distinction may, however, still be made by means of the following data, supposing the fact of pregnancy to be previously known. When inflamed, the tumefied cervix is more or less generally indurated, whereas, in the natural state, in the first months of pregnancy, it is enlarged, but soft, throughout its entire texture ; the os is more open than is consistent with the stage of pregnancy ; a marked soft, velvety, or mossy sensation is conveyed to the finger from the surface of the open os, and from the parts immediately adjoining.

When the inflammation is severe, and the ulceration extensive, the indications furnished by this mode of exploration alone are so decided, as often to enable us to recognise at once the nature of the case. The cervix is more voluminous, or the os is much more open, than is consistent with the period of the pregnancy, and it is also more or less generally indurated. The open os, instead of presenting a smooth surface, presents a very peculiar feel, of which the word velvety scarcely conveys an idea. The surface of the open os and cervix sometimes appears fungous to the touch, or, in severe cases, of a quaggy, pul-taceous consistency. In the midst of this fungous surface may be felt, in some instances, small, moveable, superficial indurations, of the size of a large pin's head, or larger, constituted by indurated and hypertrophied mucous crypts. On withdrawing the finger, it will generally be found covered with muco-pus, and sometimes tinged with blood ; indeed, the vagina generally contains a great quantity of muco-pus, especially in its upper region.

On examining with the speculum, the cervix being retroverted after the first few months of pregnancy, it is often rather difficult to bring it fairly into view ; the difficulty may, however, always be overcome, by using either the bivalve or the conical speculum, according to the case. When the cervix has been brought fairly into view, it will be found tumid, congested, of a livid hue, voluminous, soft, or only partially indurated ; and on one or both lips, generally, penetrating into the cavity of the os, is seen a more or less extensive ulceration, sometimes covered with deep, long, fungous granulations. This great development of the granulations—this luxuriant fungousness of the ulcerated surface—is so marked in some cases, and so seldom observed in the non-pregnant state,

that, when it is found, it may be said itself to constitute a symptom of pregnancy. I have, in several instances, recognised the gravid state of the uterus from the peculiar appearance alone of an inflammatory ulceration of the cervix. The ulcerated surface, as I have said, is generally covered with a great quantity of muco-pus, but does not bleed so readily as might be supposed from the luxuriance of the granulations. The fungous character of ulceration of the cervix in pregnant women is sometimes so great, that it might occasion in the minds of persons unacquainted with the above facts, the impression that the patient is affected with malignant ulceration of the organ. This fungous character is generally assumed about the end of the third or fourth month of pregnancy, increasing gradually as it progresses.

The purulent secretion is generally profuse; but as there is often a considerable white flux from the congested parietes of the vagina, the pus from the ulcer becomes mixed with it, and loses its characteristic appearance. The patient thus appears merely to have a white leucorrhœal discharge, unless the touch be resorted to, when the finger is withdrawn covered with pus. In some cases of ulceration in incipient pregnancy, I have known there to be no leucorrhœal discharge, pus being secreted only by the ulcerated surface, and being absorbed in the vagina.

General Symptoms.—The natural and inevitable result of such a state as the one above described is, that the general health suffers deeply. The patient, racked with pains, which, even when not very severe, are most harassing, from their persistence, loses appetite, rest, strength, and flesh; she becomes pale and thin, a prey to cardialgia, constipation, cephalalgia, palpitation, &c. Feeling easier in the reclining position, she lies down a great part of her time, and awaits her delivery, as the only probable termination of symptoms which she—and, generally speaking, her medical attendant—attributes to the pregnancy alone; whereas they are, in reality, the result of local uterine inflammation, susceptible, in many cases, of a speedy cure.

The inflammatory affections of the lower segment of the uterus, now described, I have found to be one of the most frequent causes of abortion; and I am firmly convinced that they are the unsuspected cause of a large proportion of the miscarriages that occur. In one of the cases which I have attended this summer, my patient, a young married woman of four-and-twenty, labouring under severe inflammatory ulceration of the cervix, miscarried five times successively within the first four years of her marriage, at the end of the sixth or beginning of the seventh month.

In some instances, notwithstanding the existence of severe inflammatory ulceration of the cervix, the patient goes to her full time, and is safely delivered. But the fact of extensive ulceration existing at the uterine neck is a most unfavourable complication, rendering the patient (as well as the one in whom the ulceration is followed by abortion) very liable to general metritis, from extension of the inflammation to the body of the uterus; giving rise, even when this is not the case, to purulent and bloody discharges, which tend still further to weaken and debilitate the system. The real cause of these purulent and bloody discharges not being recognised, the therapeutic agents that are resorted to (generally speaking, anti-hemorrhagics, tonics, &c.) necessarily fail in producing any decided effect, until time, at last, with their aid, transforms the acute disease into a chronic one; the patient remaining for years a sufferer, until she eventually rallies, by the strength of her constitution and the progress of age, or sinks from uterine cancer, or some other organic disease.

Treatment.—Inflammatory ulceration of the cervix uteri occurring or existing during pregnancy, should be treated by local and by general agents, but more especially by the former. Astringent vaginal injections, repeated cauterization of the ulcerated surface, continence, and rest in the horizontal position, are the principal local means to be resorted to. As the general treatment must be guided by the general state of the patient, which may vary considerably, it is impossible to lay down any precise rules. I would merely remark, that

mild tonics are the remedies which are the most frequently indicated, on account of the generally debilitated state of the system. The caustic that I most frequently use is the nitrate of silver, which must be freely applied, and carried into the cavity of the os, if the ulceration extends so far, as it mostly does. I rather avoid the more energetic caustics, such as the acid nitrate of mercury, wishing to localize as much as possible the action of the remedy. I do not, however, hesitate to apply it to the luxuriant fungous ulcerations which I have described, and which the nitrate of silver often does not modify with sufficient energy to ensure cicatrization. The milder forms of ulceration—those which are observed in early pregnancy—often heal with surprising rapidity, considering their character. This is sometimes the case with the fungous ulceration of more advanced pregnancy, but much less frequently. The latter are mostly intractable and difficult to heal, but less so, perhaps, than ulcerations of a similar character would be in non-pregnant females. In the pregnant woman the luxuriance and fungosity of the ulceration is not so much the result of the intensity of the disease as of the increased physiological vascularity and vitality of the uterus, which increased vascularity appears likewise to facilitate the healing process.

The injections which I use are the same as in non-pregnant women—solutions of sulphate of zinc, alum, acetate of lead, tannin, &c., for further details respecting which I must refer to my work on uterine inflammation.

I am not in the habit of resorting to leeches, or to scarification of the cervix, in these cases, because I have not hitherto found these modes of treatment necessary; but I have no doubt that they might be resorted to without fear, were they deemed necessary. It is, however, I have hitherto thought, most prudent not to adopt any mode of treatment which is calculated to interfere much, even momentarily, with the circulation of the pregnant uterus. I do not, either, use the cold hip-bath in these cases, for a similar reason.

The application of caustic to the ulcerated surface occasions, as in the non-pregnant females, but very little pain at the time, although rather severe pain sometimes comes on in the inguinal and hypogastric regions in the course of a few hours, lasting for some hours, or for a day or two. The leucorrhœal discharge is also often tinged with blood for one, two, or three days afterwards, as is the case with ordinary ulceration. This slight show need occasion no alarm whatever, as it is purely local, and the result of the application of the caustic to an ulcerated surface.

Under the influence of this treatment, the ulceration soon assumes a healthier, less luxuriant appearance, then begins to cicatrize, and finally heals.

Once the progress of cicatrization has fairly set in, the irritability of the ulcer and of the surrounding tissues having been subdued, there is but little fear of abortion taking place. But until this is the case, abortion is imminent, and may, indeed, be feared daily. It is well, therefore, to apprise the patients of this circumstance, as otherwise they would be certain to attribute the miscarriage, were it to occur, to the instrumental examination. This leads me to say a few words respecting the use of the speculum in these cases.

The only circumstance which can explain the fact of the frequent existence of ulcerative inflammation of the uterine neck during pregnancy having hitherto passed unperceived by accoucheurs and pathologists, who in France freely resort to instrumental examination in uterine disease, is the general impression among them that the use of the speculum in pregnant women is dangerous, and likely to give rise to abortion. Such a notion, however, is most unfounded, as I have become convinced from my own experience. A careful instrumental dilatation of the vagina in a pregnant female is of itself perfectly harmless, as the slightest reflection will show. On the other hand, it is only by combining instrumental treatment with the other means employed, that the ulcerative disease can be cured; and, as I have stated, the chances of abortion taking place under the influence of the ulcerative disease I have found so great, as to render it imperative to adopt every curative means in our power.

In concluding this paper, I may, perhaps, be allowed to state as my firm conviction, that the facts which it contains, when generally known, are calculated deeply to modify existing opinions and practice, with reference to the diseases of pregnancy, the causes of abortion, and the treatment of the morbid phenomena which precede and follow it, in a large proportion of the cases that occur in practice.—*Lancet*, September 26, 1846.

FORENSIC MEDICINE AND MEDICAL POLICE.

INFANTICIDE.—QUESTION WHETHER WOUNDS WERE INFLICTED DURING PARTURITION OR AFTER DELIVERY.

The accused was brought to trial before the Court of Assize of the Moselle on a charge of infanticide. The facts of this case were these :—Some moments after the delivery of the accused, one of the female assistants perceived that the infant was wounded in the head ; there was a large wound of a T form, a part of the scalp was divided throughout and detached from the cranium, so that, when it was raised, the naked bone was exposed. On being interrogated, the accused declared, that being delivered while she was in a standing posture, the infant fell on the floor, and that the wound was caused by the head coming in contact with a projection there. The infant died, and three days after was inspected medically. The medical man pronounced his opinion, that the infant was viable ; that it had lived, and that death had been caused by the wound in the head ; and that the appearance of the wounds was such as indicated the use of a cutting instrument ; that these could not have been produced by a fall, but by wilful acts.—And this view was agreed in by two other medical men. At a subsequent period of the proceedings the accused withdrew from her first statement, admitting that she had inflicted a wound on the infant's head with a knife, with the explanation that she had used the knife during the pangs of labour, in the belief that she was cutting, not the child's head, but a sac, to afford herself relief. The medical men considered it improbable that the accused could have wounded the infant either during parturition or immediately after, and even endeavoured to show the impossibility of her wounding the infant's head in a standing posture, and when the head alone was in the act of being delivered. As the father and mother of the accused were charged as accomplices, the jury finding the medical evidence unsatisfactory, acquitted all the parties.—*Gazette Médical de Paris*, 7 Novembre 1846 ; from the *Gazette des Tribunaux*.

ON THE DANGER OF USING ZINC VESSELS FOR ALIMENTARY SUBSTANCES.

A dealer in cyder remarking the loss he sustained from the leakage, &c. of his casks, procured zinc cisterns instead of them. On examining the cyder after it had been kept in these for three months, he found it had acquired an acrid styptic taste, and on being tested by a chemist, was found to contain a poisonous salt, namely, the acetate of zinc.—*Gazette Medicale de Paris*, Novembre 14, 1846.

Part Fourth.

MEDICAL NEWS.

ENTERTAINMENT GIVEN TO ORFILA AT MADRID.

M. Orfila, the well-known Toxicologist, dean of the Medical Faculty of Paris, is at present on a tour through Spain, for the purpose of inspecting the institutions connected with medical education. At Madrid a public entertain-

ment was given to him, at which the principal medical men of the Spanish capital were present. M. Orfila is himself a Spaniard by birth. Rubio, the queen's physician, proposed Orfila's health, and in the course of his speech took occasion to complain that Spanish medicine did not receive full justice from their French neighbours. "Our French brethren do not understand us; they hold us very cheap, and, what is worse, they condemn to oblivion all that we have done in the past, and all that we do at present; they treat us with an extreme injustice, and we trust, illustrious sir, that after what you have seen, you have become sensible of the hardship of our case. We once stood high in general estimation; we have since sunk very low. Three centuries ago, when our armies spread over the world, our physicians, like our soldiers, like our men of letters—gave the law to Europe. A deplorable train of disasters, too well-known, have brought our country to the brink of ruin. But the Spain of our day is no longer the Spain of Charles II.; it is now under the protection of a paternal government and institutions which foster the progress of civilisation. We have made exertions, the extent of which you, sir, have taken pains to appreciate, with the object of restoring the reputation of our better days, and these exertions have already borne fruit. To you, Sir, holding as you do a position so prominent in that fortunate country which is the centre of European civilisation, we commit and entreat you to accept the mission of making known to France both our exertions and their fruits. Do this, and you will cement the bonds of a scientific alliance between the two nations. We address you with an entire confidence; for though the glory of your name belongs to France, your heart has not ceased to be a Spanish heart."

M. Orfila, in his reply, undertook to make known to France and to Europe, the exertions now making by Spain on behalf of medical science.

One of the last toasts proposed was "*to the health of all the medical men in the universe.*"

FRAUD IN THE SALE OF LEECHES.

For some time past a very extensive fraud has been perpetrated in Paris by the sale of leeches in a gorged state. An official inspection has been lately made by order of the Government, and the result is, that no less than 40,000 leeches have been seized and condemned by the commissioners appointed to visit the different stores where leeches are kept for sale. The cause of this fraud appears to be the strange system which exists in Paris of selling leeches by weight; hence they are allowed to gorge themselves with the blood of dead animals. A fraud of this kind is easily detected by very gently pressing the body of the leech from the tail to the mouth, when a small ring of blood appears. This is not observed in a leech which is in a proper condition for medical use.

RATE OF MORTALITY IN PARIS.

The mean annual mortality of Paris is one death among 51 persons living. In one district it is as low as 1 in 62, and in another as high as 1 in 43. In the prisons the deaths are 1 in 15, and in the hospitals 1 in 6.—*Gazette des Hôpitaux*, Oct. 20.

CONTAGIOUS DISEASES PREVENTION ACT.

We are glad to find that medical practitioners in various parts of the country are actively engaged in enforcing the provisions of the act passed in the last session for the prevention of contagious diseases, and the removal of nuisances. The following case was recently brought before the magistrates at the Greenwich Police Court. Mr Fenton appeared to answer an information laid against him, by direction of the Churchwardens, Overseers, Board of Governors, and Directors of the parish of St Alphage, Greenwich, under the 9th and 10th Victoria, c. 96. for having on his premises a quantity of noxious and offensive matter, prejudicial to human health. Several witnesses were examined, who

proved that the defendant had from time to time collected a large quantity of ashes, decayed vegetables, and other noxious substances, on a piece of vacant ground, near the Trafalgar Road, which emitted a most offensive and unwholesome effluvia. Certificates were produced from Messrs Bradley and Sturton, surgeons, expressing their opinion that this accumulation of offensive matter was likely to be injurious to the health of the inhabitants. After hearing the defence, Mr Traill said he would issue the order he was empowered to make under the act, requiring the defendant to remove the nuisance in two days. If he failed to do so, an order would be given to the complainant to remove the obnoxious matter at defendant's expense; and, if the defendant offered any obstruction to the execution of that order, he would render himself liable to a penalty of L.10.—*London Medical Gazette.*

ADVANCE OF THE ASIATIC CHOLERA TOWARDS EUROPE.

According to the latest intelligence received from Trebizonde (Sept. 26th), a town on the south-eastern shore of the Black Sea, it appears that the Asiatic cholera is slowly but steadily progressing in the course towards Europe which it took in 1830-31. We subjoin the following extract:—"The cholera has passed the line of the Russian quarantine on the borders of the Caspian Sea, and is raging throughout all the Tartar villages of the districts of Salgau and of Deukeran. A considerable number of Cossacks forming the *cordon* on the Persian frontier have likewise been attacked. At Rescht, a Persian city in the province of Ghilan, the cholera is still making incessant ravages, which have now continued during two months. The sanitary state of all the towns to the west of the Caspian Sea, from Bakou to Astrachan, is very unfavourable. Dysenteries and diseases of the stomach (frequently mortal) prevail in these towns, particularly amongst the troops in the garrisons. These maladies are probably the forerunners of the real Asiatic cholera, a phenomenon rather curious, which has been again observed latterly in Persia. There prevailed at Teheran, at Astrabad, at Meschid, and at Ispahan, a malady a considerable time before the appearance of the cholera, of which the symptoms resembled the Indian disease. The caravans which arrived from Teheran eight months since, spoke of the existence of the scourge, which was mistaken for the cholera. A French physician, who resided at Teheran at that period, and who passed through our city a few days since, assured us it was the cholérine, such as had likewise been observed in several towns in Europe in 1832 as a precursor of the cholera. The population of Teheran, which had been estimated at 80,000, is reduced by the ravages of the cholera to 60,000. The Foreign Ministers and their attendants had not dared to return to the city, but still continued to reside at Mount Albus, in the neighbourhood of Schemen, to the north of Teheran. The Russian authorities at Tiflis are well aware of the appearance of the cholera in that neighbourhood, and the inhabitants of Tiflis have fled; but, up to the 12th of September, no official announcement had been made of the fact. Perhaps this course was pursued in order to prevent the merchants from becoming alarmed, and a consequent interruption of commercial affairs."—*Times.*

NAVAL MEDICAL ASSOCIATION.

A meeting of the members of this association was held on Wednesday, October 28, Mr Drummond in the chair. The Association had its origin in a meeting of the medical officers of the navy, held at Bermuda in December, 1845. At that meeting the following resolutions were passed, viz.:—

"That it is considered expedient that an Association should be formed, to be called the Naval Medical Association. That the first object to be taken into consideration in this Association is the advantage that would accrue to the corps by their having an opportunity, through original essays or otherwise, of diffusing the useful knowledge on medical subjects, &c., which their position

gives them such facilities of acquiring. That a medical library and reading-room be established, furnished with the medical periodicals, &c., and that a medical officer, on permanent half pay, be appointed to perform the office of librarian and secretary. That a central council be formed, to consist of not less than five members, to meet in London for the transaction of the business of the society. That the annual subscription be L.1, or, for life, L.10. That as soon as there shall be one hundred members, those who are in London are requested to call a meeting, for the purpose of electing the council. That a treasurer be appointed to receive the subscriptions of the different officers who are disposed to become members of this association. That the proceedings of this meeting be laid before Sir Wm. Burnett, Director-General of the Medical Department of the navy, with a request that he will be pleased to give it his support."

The meeting of the 28th October was convened for the purpose of carrying out the plan then proposed. It was stated that the number of members now amounted to 90, and that Sir Wm. Burnett had consented to become the patron of the association. The following resolutions were unanimously agreed to:—

"That the association should form a junction with the United Service Institution, and that a moiety of its subscription be appropriated to the funds of that institution. That the medical officers of the army and the East India Company's Service be invited to join the association. That the name of the society be altered to that of the United Service Medical Association, and that a committee be appointed to conduct its operations."

BOOKS RECEIVED.

1. Notice sur les accroissements du musée pathologique de Strasbourg, suivie d'un catalogue formant le premier supplément de celui publié en 1843. Par C. H. Ehrmann, Professeur d'Anatomie, &c. 8vo. Strasbourg, 1846.
2. Notice Historique sur les travaux de M. M. Brischet, et Geoffroy St Hilaire, par le Docteur L. Mandl. 8vo. Paris, 1846.
3. Quarantine and the Plague, being a summary of the report on these subjects recently addressed to the Royal Academy of Medicine in France, with introductory observations, extracts from Parliamentary correspondence and notes. By Gavin Milroy, M.D., &c. 8vo. London, 1846.
4. Hassall's Microscopic Anatomy, parts 3 and 4.
5. The Stars and the Earth, or thoughts upon space, time and eternity. 12mo. London, 1846.
6. Diseases of the Million with anti-pathic indications. By J. Jeffery, M.D. 12mo. Manchester, 1846.
7. Liebig's Question to Mulder, tested by morality and science. By Dr J. G. Mulder, Professor of Chemistry in the University of Utrecht. Translated by Dr P. F. H. Fromberg. 8vo. London and Edinburgh, 1846.
8. Principles of Human Physiology, with their chief applications to pathology, hygiene and forensic medicine. By William B. Carpenter, M.D., F.R.S. &c. Third Edition. 8vo. London, 1846.
9. The Pathological Anatomy of the Human Body. By Julius Vogel, M.D., &c. Translated from the German with additions, by George E. Day, M.A. and L.M., Cantab. &c. 8vo. London, 1847.
10. Lectures and Observations on Clinical Surgery, by Andrew Ellis, Fellow of the Royal College of Surgeons of Ireland, &c. Dublin, 1846.
11. A Manual of the Materia Medica and Therapeutics, including the Pharmacopœias of London, Edinburgh and Dublin, with many new medicines. By J. Forbes Royle, M.D., F.R.S., Professor of Materia Medica, King's College, London. 12mo. Pp. 716. London, 1847.

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No. 7. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on the Mortality of the Scottish Widows' Fund and Life Assurance Society, from 1815 to 1845.* By JAMES BEGBIE, M.D., F.R.S.E., Consulting Physician to the Society.

THE substance of the following observations was recently submitted as a Report to the Court of Directors of the Scottish Widows' Fund Life Assurance Society, and laid on their table. It is now, with their permission, in this somewhat extended form, presented to the profession, as a small contribution to the science of medical statistics, particularly in reference to the subject of Life Assurance, the causes of death among selected lives, the connexion of these with other lesions and disorders, and the ages at which death takes place from different diseases.

A table, showing the disorders (as certified to the Court of Directors) of which persons assured by the Equitable Society of London have died during thirty-two years, from 1st January 1801 to the 31st December 1832, has been published by the learned actuary of that society, and, as far as I am aware, is the only document of the kind to which reference can be made on this subject.

The improvements and discoveries in medicine, particularly in the field of diagnosis, during the last thirty years, when brought to bear on this subject, will necessarily render much more satisfactory and trustworthy the labours of those who may henceforward take an interest in it; and it is gratifying to know that, in connexion with the Standard Life Assurance Company, it is engaging the

attention of Mr William Wood, whose zeal and accuracy, already well known, promise important additions to our scanty stock of knowledge.

The records of the Scottish Widows' Fund (the first Life Assurance Society established in Scotland, and now, in point of business, inferior to scarcely any in England) contain a list of 642 deaths which have occurred, from the institution of the Society, in 1815, to the period of the last investigation, at the close of the year 1845.

The total number of the insured among whom the deaths have taken place (exclusive of those whose policies have been either surrendered or forfeited) is 5989. Of these, 5542 were males, and 447 females. Of the females, 365 were married, and 82 unmarried.

Adhering to the arrangement adopted by the Registrar-General, which is likely to be followed in all future mortality tables, the deaths may be classed under twelve heads, which, with their numbers, are as follows:—

CAUSES OF DEATH.				No.
I. Epidemic and Contagious Diseases,	-	-	-	93
II. Diseases of uncertain seat,	-	-	-	52
III. Diseases of the Brain and Nerves,	-	-	-	133
IV. Diseases of the Respiratory Organs,	-	-	-	152
V. Diseases of the Heart and Blood-Vessels,	-	-	-	53
VI. Diseases of the Organs of Digestion,	-	-	-	77
VII. Diseases of the Urinary Organs,	-	-	-	23
VIII. Childbirth, and Diseases of the Uterus, &c.	-	-	-	5
IX. Diseases of the Joints,	-	-	-	3
X. Violent Deaths,	-	-	-	18
XI. Old Age,	-	-	-	6
XII. Causes not specified or ascertained,	-	-	-	27
Total,				642

Of the *first class*, the great mortality arises from continued fever; 54 out of 93 deaths, of which the class is composed, or upwards of 8 per cent. of the gross mortality, being ascribed to this cause. Of the 54 deaths, one-sixth part occurred in members of the medical profession,—an experience which justifies the caution the Board has lately exercised, when called to consider the proposals of medical men who have not previously passed through the disease. Of the remaining number, 3 are recorded among the clergy,—a profession exposed in some measure also to the risk of contagion, and only one instance in the case of a female.

Fever is well known to be most common between the ages of 15 and 30. Dr Tweedie has published a table, constructed from the register of patients admitted into the London Fever Hospital during one year, from which it appears, that of 676 admissions, 494 were under 30 years of age, and only 182 above that period of life.¹

¹ Cyclopædia of Practical Medicine, Art. Fever.

Out of 2537 persons attacked by fever, and admitted into the hospital in the four years, 1825-28, 429 were under 20 years of age, 1188 between 20 and 30; 531 between 30 and 40, and 389 between 40 and 80; so that the number of attacks between 20 and 30 nearly equals the number of all other ages put together.¹ The records of the same hospital show that, of 500 deaths which occurred there, 14 took place under 10 years of age; 158 between 10 and 20; 157 between 20 and 30; 64 between 30 and 40; 59 between 40 and 50; 26 between 50 and 60; 15 between 60 and 70; and 7 between 70 and 80, or upwards of three-fifths between 10 and 30.²

The period of life at which fever proved most frequently fatal in the experience of the Society, is considerably beyond that of the hospital—thus, out of 54 deaths, 2 only took place between 20 and 30; 8 between 30 and 40; 21 between 40 and 50; 12 between 50 and 60, and 10 between 60 and 70.

The table of the Equitable Society, already referred to, contrasts still more than that of the Widows' Fund with the comparative view of the mortality of fever at different ages as furnished by the Fever Hospital, for it appears that of 262 individuals who died of this disease, 5 were between 20 and 30; 30 between 30 and 40; 55 between 40 and 50; 61 between 50 and 60; 70 between 60 and 70; 34 between 70 and 80; and 7 beyond 80 years of age.

It is difficult to account for this discrepancy. It will be found, however, that the average age of entrants to the benefits of life assurance is between 30 and 40, and this circumstance necessarily limits very much the mortality from all causes in the insurance tables at the earlier ages, but it by no means explains the increasing ratio of death from fever, from the age of 30 to that of 70, among the selected lives of the better classes, compared with the rapidly diminishing rate of mortality during the same period, and from the same cause, among the poor inmates of a public hospital.

The number of claims in consequence of epidemic cholera is small, compared with the large mortality from this source during the prevalence of the disease in this country, and owing, no doubt, in some measure to the careful selection of lives by which those labouring under organic diseases or suffering from intemperate habits (the sure victims of cholera), are excluded from the benefits of life assurance. In the post mortem examination of 26 patients who had died in the Castle Hill Cholera Hospital, Dr Craigie found the following among other lesions and morbid changes, which must have preceded the attack and rendered the recovery almost hopeless. In 18 out of the 26, there existed hypertrophy of the left ventricle; in 20, adhesions of the pleura; in all the adults, atheromatous or osseous depositions in the mouth of the aorta, and in all degeneration of the arteries of the brain, (alterations of structure observed

¹ Report on Public Health, by W. A. Guy, M.D. Ranking's Half-Yearly Abstract, vol. 3, p. 389.

² Cyclopædia, Art. Fever.

regularly in those who have been addicted to the use of spirituous liquors). The substance of the liver was rarely found in a state of integrity; and in almost every case, in both sexes and in all ages, the kidneys were more or less diseased, and in the female the uterus was invariably in a morbid condition.¹

Of the 5 deaths from cholera among the insured of the Society, 3 only occurred during the epidemic of 1832. The first in the case of a gentleman aged 67, residing in Fisherrow—the second in the case of a medical man, aged 52, residing in Edinburgh—and the third in the case of a spirit-dealer, aged 34, resident in Dalkeith. The fourth death occurred in Calcutta, in 1837, in the person of a military officer, aged 52; and the fifth (reported cholera) in 1838, in that of a gentleman aged 33, resident in England. We have thus only one death from genuine cholera under 50 years of age; the others occurring at a period of life when it is well known recoveries were extremely rare.

Erysipelas has proved fatal in 8 instances in the experience of the Society, and has been associated with several internal affections which have been the cause of death; more particularly with diseases of the brain and its membranes, and disorders of the liver and bowels. Considering the frequency of this association, the disposition of the disease to recur from time to time, and its origin in depraved digestion, and defective assimilation, I apprehend that those who have been affected by it, cannot be considered as eligible subjects of life assurance. In one of the 8 fatal cases, long continued headache had preceded the last illness, and in other two biliary derangement was particularly observed. I lately advised the rejection of a life in whom the affection of the skin was associated with symptoms of diseased kidney.

In regard to the *second class* of the causes of death—those connected with diseases of uncertain seat—there is nothing which calls for particular observation. Debility and dropsy are the principal agents, the former in persons advanced in life, the latter in those of various ages, and apparently unconnected with any peculiar habit or constitution; but the documents in the possession of the Society show that in one instance there had been an attack of inflammation, the seat of which is not specified, and in another an attack of erysipelas, previous to the admission of the parties. It is due to the memory of my distinguished predecessor, the late Dr Duncan, and to the care and caution at all times exercised by the Board of Directors to say, that facts such as these were sure to meet with the attention they demanded, at the time of application.

The *third class* embraces a large share of those diseases which in their fatal results occasion the greatest loss in the business of life assurance. Next to diseases of the chest, those of the head are the most frequent and fatal. In the experience of the Equitable

¹ Edinburgh Med. and Surg. Journal, No. 114.

Society it is found that, next to natural decay and old age, apoplexy is the most fatal agent, the former yielding 14, the latter 12 per cent. of the total mortality; but there is reason to suspect that among these subjects of natural decay are many whose fatal illness might be placed under a more correct nosological arrangement, and that among the sudden deaths considered apoplectic, are included not a few belonging to affections of the heart or its vessels, a class of diseases now more carefully distinguished and better understood. In this suspicion we are confirmed by finding no place for heart-disease in the table referred to, unless these affections be included under the general name of angina pectoris, the mortality from which is very considerable, amounting to $3\frac{1}{2}$ per cent. In the more limited experience of our Society we find a mortality from apoplexy of 8 per cent., and from hemiplegia of 3 per cent., 51 deaths having been reported from the former and 21 from the latter. There are also 26 from inflammation of the brain or its membranes, and 20 from chronic affections of that organ or the spinal marrow; the remainder of the fatal results under this class arising from delirium tremens, insanity, convulsions, tetanus, and epilepsy.

Of the deaths by apoplexy, 47 were cases of males, and 4 of females; of those from palsy, 18 were males and 3 females.

It would have been interesting and instructive to have investigated the causes, predisposing and exciting, of those fatal cases of apoplexy and sudden hemiplegia, and to have ascertained their connexion and association with other lesions, but sufficient materials for such an inquiry were not before me. It may be stated, however, that of 42 of whom the personal and family history is recorded, only one affords evidence of hereditary disposition, and in none is there any notice of the apoplectic constitution, that peculiar conformation of body, which is supposed to indicate a proclivity to the disease. In two cases the fatal illness was associated with mania, and in two complicated with epilepsy. In several instances the parties were previously liable to bilious complaints, and in one instance jaundice preceded the apoplectic seizure. Two had been the subjects of acute rheumatism, and two more the victims of gout; one had been called to submit to amputation of the leg; two had suffered from erysipelas, and three from bronchitis or asthma, all which, in various ways, are known to influence the cerebral circulation. In two or three instances there is reference to headache or some other disturbance of the nervous system, and in two to indications of diseased heart. In no case was the fatal event connected with diseased kidney. Many of the sufferers were men of studious habits, and members of the learned professions.

The season of the year, and state of the weather, have been thought by many to influence the attack of apoplexy; and though I do not attach any importance to it, it deserves remark, that out of 48 instances, 5 occurred in January, and 5 in February; 4

in March, and 1 in April; 6 in May, and 6 in June; 1 in July, and 7 in August; 2 in September, and 3 in October; 8 in November, and only 1 in December. The dry heat of August, and cold damp of November, appear to have been most influential.

In regard to the age at which those affections proved most frequently fatal, we find that the earliest death took place at 28, and the latest at 79; that only 2 occurred before 30 years of age, 3 between 30 and 40, 15 between 40 and 50, 18 between 50 and 60, 22 between 60 and 70, and 12 between 70 and 80; the period from 63 to 68 giving the largest proportion of fatal issue. The experience of the Society coincides in a remarkable manner with that of Rochoux, whose statistics are generally quoted by medical writers, and who, of 63 examples of apoplexy, found 2 only happened between the ages of 20 and 30, 8 between 30 and 40, 7 between 40 and 50, 10 between 50 and 60, 23 between 60 and 70, 12 between 70 and 80, and 1 between 80 and 90.¹ Of the 72 deaths recorded by the Society, 20 took place before 50, and 52 after that age. Of the 63 by Rochoux, 17 occurred before 50, and 46 after that period of life; and in the experience of both, nearly twice as many instances of the disease showed themselves between the ages of 60 and 70, as between 70 and 80.

These data appear to confirm the conclusion at which Andral, Rochoux, and others have arrived, namely, that apoplexy becomes very common after the age of 50, but that it is most frequent between 60 and 70, after which period the disposition to it diminishes. It must be borne in mind, however, that there are nearly twice as many persons living between 60 and 70 as between 70 and 80, and, therefore, more die of apoplexy in the former decennial period; but, regard being had to the relative number of persons living at different ages in a given population, it will be found that the mortality from apoplexy is not diminished in the latter period. Dr Burrows has prepared some interesting tables on this subject, from which the inference is deducible that the relative frequency of apoplexy steadily increases from 20 to 80 years of age, and that the actual number of cases increases in each successive decennial period from 20 to 70 years of age, while the numbers living gradually diminish.²

But while age powerfully predisposes to apoplexy, the true cause of the seizure will be found in those lesions of the heart and arterial system which prevail at those periods of life, particularly in hypertrophy of the left ventricle, and atheromatous or osseous deposition in the cerebral arteries.

During the prevalence of new views regarding the circulation within the head, adopted and supported with much ingenuity by two distinguished writers lately lost to the profession, the intimate

¹ *Recherches sur l'Apoplexie*, p. 212.

² *On Disorders of the Cerebral Circulation*, p. 130. See also 5th Report of Registrar-General.

connexion of hypertrophied heart with fatal apoplexy was almost entirely lost sight of; and it was only when the study of auscultation threw light on the hidden nature of many heart affections, that sounder views of their pathology disclosed the full extent of the relation which subsists between them and disease of the brain. Dr Hope so frequently noticed instances of apoplexy, supervening on hypertrophy of the heart, that he considered the relation of the two diseases as that of cause and effect. Andral, Bertin, and Bouillaud have supported the same views, and Dr Burrows, in the able work lately published, has framed a table constructed from the experience of several authors, which gives an analysis of 132 cases of apoplexy and sudden hemiplegia, in reference to the co-existence of cardiac disease, from which it appears that 84 out of the 132, or no less than 3-5ths, had the complication in question.

But while hypertrophy of the heart must be acknowledged to have a powerful agency in the production of apoplexy, it is chiefly when associated with degeneration of the arterial system, and more particularly with disease of the cerebral arteries, that it exerts its fatal influence. The tendency to this disease of the vascular system, usually manifests itself about the meridian of life, the period when apoplexy is known to become common, and the progress in the mortality of the latter appears to keep pace with growing earthly degeneration of the arteries, and advancing years. A few instances are recorded by authors, where infants and young people have been the subjects of this affection of the arteries, but these must be considered exceptions to the general law.¹ Dr Bright² has given a case of cerebral hemorrhage, fatal at the age of 20, in which the vessels of the brain were decidedly diseased; and Dr Copland³ has met with an instance of the true hemorrhagic apoplexy at the age of 18. The disease is developed in a minor degree, and at a later period of life, in the female than in the other sex.⁴ It is common in the mouth of the aorta, and is intimately connected with hypertrophy and valvular disease; and when associated with similar disorganization in the cerebral arteries, is by far the most frequent cause of cerebral hemorrhage. It is unquestionably connected with the gouty diathesis, or some taint in the blood of an analogous character, and is almost invariably present in those addicted to the free use of spirituous liquors. The connection of gout with apoplexy and cardiac disease, and the frequent occurrence of these in the intemperate, may thus partly admit of explanation.

Of the 26 cases of cephalitis, a large proportion are returned as serous apoplexy; they consist of 24 males and 2 females. Two died between 20 and 30, 3 between 30 and 40, 10 between 40 and 50, 6 between 50 and 60, and 5 between 60 and 70. It deserves re-

¹ Hodgson on Diseases of Arteries and Veins, p. 23.

² Medical Reports, vol. 2, p. 282.

³ Medical Dictionary, art. Apoplexy.

⁴ Hasse, Pathological Anatomy, p. 82.

mark that a large number of these, at all ages, are reported as the subjects of dyspepsia, a malady which is too lightly regarded in estimating the value of life, but which, as every day's experience is tending to show, is the fruitful source of many more fatal disorders.

Of the chronic affections of the brain and spinal marrow, numbering 20 cases, 19 were males, and 1 female. Only 1 death took place before 30, 4 between 30 and 40, 4 between 40 and 50, 7 between 50 and 60, 2 between 60 and 70, 1 between 70 and 80, and 1 between 80 and 90. Several had been dyspeptic; two had suffered from rheumatism, and two from gout. In two instances there is evidence of hereditary disease of the brain, connected with strumous habit; one had had a threatening of apoplexy 15 years before insurance, and one had sustained a fracture of the skull when a boy, but lived to 28.

The papers relative to mania, epilepsy, and the remaining diseases of the third class, offer nothing worthy of remark, except that one of the 6 cases of delirium tremens occurred in a bankrupt, and another in a tavern-keeper, conditions of life very unfavourable for assurance.

In the *fourth class*, that of diseases of the respiratory organs, the mortality reaches its highest rate; and when we consider that the business of life assurance is in a great measure exempt from loss by measles, croup, and other affections of this class prevalent among children, appears to approach too closely to the average number of deaths over the population of Europe from the same causes; but when we take into account the circumstance that the lives proposed for insurance are almost all from the professions and trades of large towns, and embrace comparatively few of the inhabitants of the agricultural districts, who enjoy the largest share of health and longevity, the value of selection will be more conspicuous.

Of 152 deaths belonging to this class, consumption claims 72, or nearly one-half, and almost a ninth part of the gross mortality. The tables are composed of 61 males and 11 females. The age at which consumption proves most frequently fatal, and the period when the mortality from it sensibly declines, have been much disputed points among statisticians and physicians; and the question is one which it is of importance to determine. It is commonly stated and believed that the disease seldom occurs before 15 or after 35 years of age; but it is more correctly said, that after the 15th year, fully one-half of the deaths occur between the 20th and 40th years. In the fifth annual report¹ of the registrar-general, we are informed, that of 51,023 males born in the metropolis, 8297 sunk under consumption, and that of these 1438 died between 20 and 30, 1498 between 30 and 40, 1611 between 40 and 50, and 1321 between 50 and 60, the remainder being before 20 or after 60; and he calculates, according to the metropolitan life table,

¹ Second Edition, p. 438-39.

that of 1000 alive at the beginning of any year of age from 20 to 30, about 4·7 die in the year following; from the age of 30 to 40, nearly 5·3 in 1000 die; and from the age of 40 to 50 the danger from consumption is greatest, for 6·6 in 1000 men die of the disease annually. The mortality from the malady increases 1·75 per cent. annually; 19 per cent. every ten years of life from the age of 20 to 50. The remark made by Dr Young, in his learned work on consumption, that if we consult the evidence of actual registers of cases, we shall find that the disease is even more frequent above 35 than below it, appears to be greatly strengthened by these calculations. Laennec informs us that Bayle found in the hospitals of Paris that it was most frequent between the 40th and 50th years. Louis and Bayle himself, however, have both furnished tables, showing that the period from 20 to 30, and that from 30 to 40, number the most victims; and Sir James Clark, who has paid much attention to the subject, shows by tables constructed with much industry from these and other authors, and various places, that the greatest number of deaths occurs between the age of 20 and 30; the next in proportion, between 30 and 40; the next, between 40 and 50; the succeeding grade being sometimes placed between 15 and 20, at other times between 50 and 60, or even above 60.¹ Professor Hasse's observations confirm the general opinion of its prevalence between the 20th and 40th years. Out of 122 cases of recent and well-marked tubercular disease of the lungs, he observed 14 preceding the 20th year, 74 intervening between the 20th and 40th, 26 between the 40th and 60th, 7 between the 60th and 80th, and 1 subsequent to the 80th year.²

In the experience of the Society, the largest number of deaths took place between the 30th and 40th years. Nine occurred between 20 and 30, 35 between 30 and 40, 16 between 40 and 50, 7 between 50 and 60, and 5 between 60 and 70. The period between 30 and 40, including both, numbers 37 deaths, or more than a half of the total mortality; and the age of 39 alone numbers 9 deaths, the largest in any one year, and equal to the first of the decennial periods, and exceeding considerably either of the two last.

The table of the Equitable Society differs materially from all others on this point. Of 339 deaths, 27 only occurred before the age of 30: 63 between 30 and 40: 83 between 40 and 50: 81 between 50 and 60: 66 between 60 and 70: 18 between 70 and 80, and 1 between 80 and 90; only 90 out of 339 having taken place before 40, while 249 occurred after that period.

The observation already made in regard to the average age of entrants to the benefits of life assurance will again apply to the comparatively small number of deaths before the age of 40 (though the general experience is not contradicted by that of the Widows'

¹ Cyclopædia of Practical Medicine. Art. Tubercular Phthisis. Vol. iv. p. 309.

² Pathological Anatomy, p. 316.

Fund); but it is difficult to account for the very large mortality after that period of life. Whatever doubt may rest on the perfect accuracy of the returns made to the Equitable Society of the cause of death, there is no doubt that tubercular consumption is more prevalent in advanced years than is generally admitted. We have the high authority of Laennec for stating that it is very frequent in old age, and that he once opened the body of a woman who died of it upwards of 99 years of age.

The remark of Dr Alison, in his interesting paper on the Pathology of Scrofulous Diseases, that the observation of the greater frequency of deaths from phthisis beyond the age of 40 than between the age of puberty and 30, is applicable to the lower orders only, and that among the higher the occurrence of fatal phthisis beyond the age of 40 is certainly rare, in comparison with its occurrence between 15 and 30, would appear, from the data furnished by assurance mortality tables, to be open to objection.

The record of the personal and family history of 50 of the subjects of consumption, shows that 14 had been liable to dyspepsia, a malady which we know may indirectly lead to the development of phthisis, especially when there exists a hereditary tendency to tubercular disease. Three had suffered from pneumonia, and two from rheumatic fever. Three had been subject to catarrh, and two had afforded evidence of scrofula in the enlargement of the external glands. One female had suffered from repeated abortion, and one male used tobacco to excess. In 10 out of the 50 a hereditary taint of consumption might have been inferred from the circumstance of one near, or two or more distant relations, having previously fallen victims to it. In one instance a male insurer had lost a brother and sister by consumption previous to his admission, 5 males had each lost a brother, 1 female a brother, 3 males two first cousins each, another male had lost a brother of influenza (very probably phthisis), and another his mother by lingering illness after childbirth, which there is reason to suspect was of the same character. In all these, with one exception, the death of the insurer took place after 35 years of age. The operation of a wise and salutary law, lately adopted by the Board, of rejecting as ineligible all applicants for assurance in whose immediate family more than one instance of the disease has manifested itself, especially if the party be under 45 years of age, must necessarily limit very much the means of acquiring full statistics on this subject.

Among the remaining affections of the lungs not considered tubercular, there were various instances of complication with disease of the heart, kidney, and other organs, the records of which are too imperfect for notice. Three, however, out of 21, had previously been affected with pneumonia, three with catarrh, and one with erysipelas. In two the fatal disease in the lungs was complicated with organic disease of the heart. Of the cases of hydrothorax, 19 in number, the history shows that in three instances the

fatal result had been preceded by acute rheumatism, and in one by gout. There is abundant reason for the conjecture, that in these, at least, the effusion into the pleura was the consequence of organic lesion of the heart.

Of the 8 cases returned as laryngitis, two were of acute character, and terminated within 24 hours; the remainder were of more chronic nature, and complicated with disease of the trachea, bronchi, and lungs. In one, the affection of the larynx was associated with disease of the kidney. Among the 18 cases of bronchitis, there were only two of the acute kind. The subjects of the chronic form were many of them previously dyspeptic and liable to colds: two had suffered from rheumatism, and one from dysentery. One young man, after a short insurance, died with diseased kidney and pleurisy, complicated with bronchitis; and one in the vigour of life died of the chest disease, associated with an affection of the skin, the character of which is not specified. The scaly affections not unfrequently alternate with the inflammation of the bronchial membrane, and the cure of either is rendered difficult by this association.

The *fifth class* embraces diseases of the heart and blood-vessels, of which there are 53 cases; 46 being affections of the heart itself, 4 inflammation of its investing membrane, and 3 aneurism of its large vessels. The imperfect manner in which the certificate of the cause of death is too often framed, and the want, in many instances, of the evidence furnished by post mortem examination, prevent any division of these 46 deaths into classes according to pathological arrangement. Hypertrophy, dilatation, and valvular disease, or some combination of these lesions, are generally assigned as the morbid changes on which the fatal termination depended. In one instance, it resulted from rupture of the heart itself, and effusion into the pericardium—a case which excited the most painful interest in this place two years ago, and a history of which was published by Dr Hunter. Rupture of the heart, of which there are numerous instances on record, in a large majority of cases occurred in the left ventricle, and in almost all, appears to have penetrated its walls. In the case before us, the laceration did not extend to the cavity of the ventricle, at least no perforation could be discovered on a careful examination; but it involved the coronary vessels, which were in a diseased condition, and from them the fatal hemorrhage took place into the pericardium, causing mechanical obstruction to the diastole of the heart. In almost all the cases reported by authors, the heart itself or its vessels, or both, have been found affected by organic change; hypertrophy, dilatation, softening, ulceration, atheromatous, or osseous deposition have generally manifested themselves. The sanguineous deposits so commonly found in connexion with the rupture, and which have led to the designation of apoplexy of the heart by Cruveilhier, appear to be the consequence, and not the cause, as has been stated of the laceration. This formidable lesion appears to be limited to advanced age. Dr Townsend has

furnished a synopsis of 25 cases, in 17 of which the age is recorded : in 1 only it was under 60 ; in 4 between 60 and 70 ; in 7 between 70 and 80 ; and in 5 between 80 and 90 ; in two more of the 25 it is reported "old."¹ Dr Forbes has supplied a view of the seat of the rupture in 57 cases collected from different sources, from which it appears that in 32 it was found in the left ventricle, in 13 in the right, and in 3 in both ; in 7 in the right auricle, and in 2 in the left.² According to Pigeaux (quoted by Hasse), of 54 cases, 44 affected the left ventricle, and 8 the right, 1 the left, and 1 the right auricle. Of the 25 cases collected by Dr Townsend, 16 occurred in males, and 9 in females. A remarkable circumstance in the history of the affection is the occurrence at times of more than one laceration in the same heart. Ollivier, who had before him 49 authentic cases of the lesion, found 8 in which there were more than one rupture. Dr MacLagan recently related a case in which there were two in the left ventricle. Morgagni observed three, and Andral no less than five in the same situation.³

Out of 32 cases of death from organic affection of the heart, in which the previous history of the parties is recorded, 5 appeared to originate in obstruction in the lungs, arising from bronchitis or emphysema, 2 are reported as connected with gout, and 14 out of the 32 individuals are admitted to have been the subjects of acute rheumatism, the fatal heart disease supervening at periods, more or less remote from the date of the rheumatic attack.

The complication of articular rheumatism with inflammation and enlargement of the heart has long been known to the profession. Dr Baillie informs us, that Dr Pitcairn was the first to make this important observation, and he himself speaks of it as "an established pathological fact." The subject has since been elucidated by numerous authors, but it is to Bouillaud and Chomel, and more particularly to Dr Latham, that we are indebted for correct notions of its true pathological character. The extent and frequency of this connection of inflammation of the membranes of the heart with rheumatic fever, as it is called, is a subject of vast importance to the interests of life assurance, and it is surprising how little it has hitherto influenced the opinions of medical men in general, or directed the practice of assurance offices, in the selection of lives. By universal consent an extra premium is imposed on all those who have been in any degree the subjects of gout ; but the victims of rheumatism, a far more perilous disease, in too many instances, it is to be feared, carrying about with them, the consequences of its invasion of vital parts, have been too generally considered admissible at the ordinary rate of premium.

Of 85 cases of rheumatism, related by Dr Macleod, the heart is said to have been implicated in 18, or in rather more than one-fifth.

Cyclopædia of Practical Medicine. Vol. iv. p. 631.

Lacnec, translated by Forbes, p. 582.

Copland Medical Dictionary (Heart).

In 72 cases, noted by Hache and others, the affections were concurrent in 16, or in nearly a fourth of the number. Dr Taylor has given the history of 25 cases of pericarditis, 13 of which occurred during the progress of rheumatism; here the affections were concurrent in the proportion of more than one half. Dr Watson calculates that nearly one-half of the numerous patients that annually come into the London Hospitals, affected with acute rheumatism, have the heart or its membranes implicated. The observation of Bouillaud has led him to conclude, that the coincidence of these diseases is the rule, and the non-coincidence the exception. The experience and statistics of Dr Latham (whose admirable lectures ought to be in the hands of every practitioner), place the matter in its true light. Of 136 cases of acute rheumatism treated by him in St Bartholomew's Hospital, between the years 1836 and 1840, both inclusive, 75 were males and 61 females. Of the 75 males, the heart was affected in 47, and unaffected in 28. Of the 61 females, the heart was affected in 43, and unaffected in 18. In regard to the seat of the inflammation in those cases, Dr Latham places it in the endocardium alone in 63, in the pericardium alone in 7, and in both together in 11, while it was doubtful in 9; facts which show that as many as *two-thirds* of those who have acute rheumatism, also suffer inflammation of the heart.¹

With respect to the period of the actual invasion of the heart, and the circumstances which regulate it, no precise law can be laid down. The cardiac symptoms have in some instances preceded the arthritic; more frequently they proceed together, and not uncommonly the extension to the heart takes place when the disease in the joints declines. One fact has been remarked by all attentive observers, that the younger the patient is who labours under rheumatic fever, the more liable he is to the cardiac complication. The number of young persons affected with hypertrophy of the heart is very great, and, on inquiry into the history of such cases, it will be found in almost all, that the affection supervened on acute rheumatism. Of 55 cases of pericarditis, noted by Hache, 6 only referred to individuals beyond the 40th year. Bouillaud holds that the more acute and violent the affection of the joints is, the more certain is the concurrence of one or other form of inflammation of the heart. Other authors dispute the accuracy of his conclusions. In private practice, I have certainly found the sub-acute or non-febrile cases the most liable to the cardiac complication. A passing notice of the last six cases which have recently come under my care, may not be out of place. Three of these belonged to the acute general rheumatic arthritis, and three to the less severe, partial, and non-febrile rheumatism. The subjects of the former were two males and one female, from 25 to 30 years of age, strong, robust, and healthy in appearance, and all predisposed

¹ Lectures on Diseases of the Heart. Vol. i. Lect. viii. See also Hope on Diseases of the Heart, p. 178, where the proportion is estimated at *three-fourths*.

to rheumatism. Two had previously been affected by it. In all these, early blood-letting was employed with advantage; and under the use of calomel and opium, complete recovery took place in the most severe case in eight days, and in the remaining two in three weeks. In none of these was there any indication at any time of cardiac complication. The sufferers under the slighter form of disease were two females and one male, from 15 to 20 years of age, of strumous habit and delicate appearance, but neither chlorotic nor anemic. The first of these, the male, early in the disease manifested the signs of pericarditis, in the anxious countenance and uneasy breathing, with tenderness in the epigastrium, excessive impulse, and friction sound of the heart. These, with the articular pain and swelling, yielded to local blood-letting and other usual means, and the patient recovered in three weeks. The second, and sister of the former, was seized in the third week of rheumatism with the well-marked signs of endocarditis, pain in the præcordial region, excessive impulse, and the distinctive murmur of impaired aortic valves. The more urgent symptoms subsided under local bleeding and repeated blistering, and the free use of calomel and opium. Life has been saved, and health apparently restored; but the continued endocardial murmur and excessive impulse, declare that the heart still remains unsound. The last and only fatal case was in character the mildest of all, but it was not amenable to treatment; it was long protracted, and tedious; and late in the disease, by slow and insidious steps, the symptoms of pericarditis, and subsequently of endocarditis, developed themselves, and resisted the frequent application of leeches and blisters, and the long-continued use of mercury and other means employed in such cases. The patient sunk in six months from the period of attack, with tumultuous action of the heart, breathless, and dropsical. I have recently seen, along with Dr Taylor, a stout young man of 28, labouring under acute rheumatism, but not of the most violent kind, in whom a slight diastolic murmur was observed for the first time about eight weeks from the commencement of the attack; the murmur has increased in distinctness, and is now accompanied with excessive impulse. The rheumatic pains have disappeared.

But the heart is not the only vital organ liable to suffer inflammation during acute rheumatism; the pleura and lungs frequently participate. Chomel states that the pleura is as often inflamed as the pericardium, and Professor Hasse affirms that rheumatism is unquestionably the most ordinary source of pleurisy. Other observers have not, however, corroborated these opinions. Among Dr Latham's 136 patients, we find the lungs or their membranes inflamed in 24, or 1 in $5\frac{1}{2}$. Of the 46 cases in which there was no heart complication, the lungs were inflamed in 5; but of the 90 cases in which the heart was affected, the lungs were also inflamed in 19. These 24 cases were made up of 2 of pleurisy, 4 of bronchitis, and 18 of pneumonia.

Such are the more immediate effects of acute rheumatism; its ultimate ravages it is difficult to estimate. The heart being once affected by thickened valves or adherent pericardium, or by a combination of these lesions, a series of morbid changes in other viscera succeed;—the brain, the lungs, the liver, and kidney in turn participate, and apoplexy, palsy, asthma, and dropsy supervene. There is really no disease which so insidiously, yet so surely, lays the foundation of irreparable mischief, in the most important organs of the human body.

The development and progress of these affections of the heart and subsequent lesions, are often obscure and protracted. Many a recovery from rheumatic fever is believed to be complete, till a careful examination of the heart detects the latent mischief, and shows how fallacious the recovery has been. Many years may elapse before any symptoms calculated to excite uneasiness on the part of the patient or his friends begin to manifest themselves, and many more before the series of morbid changes connected with them prove fatal to life. In the spring of 1824, I first saw a lad of 12 years of age who had suffered from a severe attack of acute rheumatism some years before, but from which he was supposed to have completely recovered. At this period he had hypertrophy of the left ventricle and disease of the aortic valves, and his limbs had become œdematous, with other symptoms indicating that the right chambers of the heart had suffered dilatation. He continued under my care till the winter of 1837, when the only remedy from which he ever obtained benefit (a combination of iron and squill which he had used almost constantly during that long period) failed in procuring him relief, and he died soon after with enlarged liver, and degenerated kidney, in a state of coma.

Lifemay be continued, and tolerable health enjoyed for many years, with a heart damaged by the consequences of rheumatic inflammation, and death may ultimately take place from a renewal of the inflammation in the unsound structure at a distant period. One of my earliest patients was a lady, the mother of three or four children, who had been affected with acute rheumatism some years before her marriage. At the period of my first attendance she was in pretty good health, her chief complaint being an occasional fit of palpitation, or breathlessness on making unusual exertion. Examination, however, discovered excessive impulse and a loud systolic murmur; but she continued to enjoy a fair share of health for many years, and it was only on occasions such as I have referred to, or from mental disquietude or febrile excitement, that the state of the heart gave rise to uneasiness or suffering. She became the mother of a large family, and had the pain of witnessing two of the number cut off in early life by rheumatic carditis, inherited from their parent, who survived for nearly thirty years the period of its first inroads on her own constitution, and only suffered severely, during the three last months of her life, the more urgent and distressing symptoms of obstructed

lungs and general dropsy, the consequence of renewed inflammation of the heart. But the progress of disease, once lighted up in organs so essential to life, is by no means so slow in the great majority of instances. We know that inflammation of the membranes of the heart is frequently fatal in a few days, or weeks, or months; and that, even when the injury done permits the continuance of life for a longer period, that a few years at most is the term allotted to the sufferer. Of seven cases among the assured of the Society, where the data are certified by the medical officers or by the ordinary attendant of the party, one survived the attack of rheumatic fever fourteen, and the date of his policy twelve years; a second outlived his rheumatic fever and his policy together, ten years; a third, the disease six, and his policy five; a fourth, the same periods; a fifth survived the rheumatic attack five years, but died in the second of his assurance; a sixth lived three years after rheumatism, and died two years after effecting his assurance; and the seventh insured the year following his rheumatic attack, and became a claim on the Society in two years after. All these died of heart disease. One had suffered four attacks of rheumatism before his proposal was accepted, two more had been affected the second time, and there is reason to believe, in regard to the others, that they had had attacks subsequent to assurance. A regulation lately adopted by the Board, it is hoped, will be followed by other Societies, and place the acceptance of proposals of life assurance from those predisposed to rheumatic fever on terms more equitable to the great bulk of insurers, as well as to those who are called to submit to an extra premium for gout, hernia, and other disorders of a less serious nature.

Of the *sixth class*, the principal mortality arises from chronic affections of the stomach, liver, and bowels. Out of 77 deaths, of which the class is composed, 10 only occurred from acute disease. Functional disorder of the digestive organs very generally prevailed among the parties previous to admission, and in particular the circumstance of several of the subjects of liver disease having been reported "bilious," and others "free livers," is distinctly noticed. Of 30 cases, in which the stomach and bowels were the seat of disease, the stomach chiefly suffered in 10 and the bowels in 12. In the former the pylorus was affected by scirrhus in four instances, the mucous membrane chiefly in the remainder. Chronic inflammation and ulceration were the principal lesions of the intestines. In four cases the affection of the stomach was complicated with disease of the liver; in one with disease of the pancreas. The bladder participated in two cases with disease of the bowels. There is one death from strangulated hernia, and three from perforation of the bowels, followed by peritonitis. In three cases the affection of the liver was complicated with disease of the kidney.

In the *seventh class*, containing 23 deaths, there is one case of stone, and three of diabetes, the remainder consisting of examples of

diseased kidney (one of which occurred in a man aged 37, and terminated in effusion in the brain), or of disease of the prostate gland or urinary bladder; these last occurred in men advanced in years. Thus out of 16 deaths, 7 were above 65 years of age, there being one at 67, two at 75, one at 76, two at 77, and one at 90.

In the *eighth class*, we have 5 deaths, 3 being in childbirth, and 2 from disease of the uterus. The respective ages in the puerperal cases were 31, 37, and 42. Of the 365 married women on the list of the Society during the 30 years of which we have attempted a statement of the mortality, we have no means of discovering how many were fruitful, and to what extent; we can, therefore, form no opinion of the proportion of deaths in child-birth. But supposing that only one-half of these 365 were child-bearing, and that each became the mother of 4 children, at single births, during her married life, then the mortality of the Society from child-birth will be under the average number of deaths over England from the same cause. The Registrar-General informs us, in his Fifth Annual Report, that 11,722 English women died in child-birth in four years, from 1838 to 1841 inclusive; the mortality was 1 death to 171 births registered; but in the practice of Mr Mantell (a gentleman well known to science), during 15 years among all classes in Lewes, the deaths were only 2 out of 2410 deliveries, or 1 in 1200.¹

In the *ninth class* we have only 3 deaths, namely, 2 from rheumatism, to be added to the mortality from this cause already adverted to, and one from diseased joint.

The *tenth class* presents a melancholy list of 18 lives prematurely shortened by suicide and various accidents by land and sea. Of these, four were directly by suicide, three by accidental drowning, and three by supposed drowning, the vessels in which the parties sailed not having been heard of; two by accidental poisoning; three by the fall of their horses; one by the overturn of a carriage; one by railway accident; and one by the fall of a floor of a house. These casualties are unusually large in proportion to the general mortality.

Of the *eleventh class*, it is only to be regretted that the proportion is so small, and that only 6 out of 642 deaths can be claimed as the natural consequence of decay and old age. Old age, however, has its diseases as well as infancy and manhood, and a careful discrimination of these must necessarily limit very much the class of natural decay. The records of the Society contain a list of 38 individuals who had passed the 75th year of age, before they became claimants on the benefits of life assurance, but under the specific name of palsy or apoplexy, of dropsy or water in the chest, of an affection of the brain or of the heart, and particularly of the lungs and urinary organs, they have already been noticed in the preceding record.

¹ Medical Gazette. Vol. ii. p. 782. See also Elements of Medical Statistics, by F. B. Hawkins, M.D. 1829.

It would be premature at the present time to attempt to draw any general conclusion from the facts which have been furnished. The mortality of the Society has not yet reached its maximum, and the additional experience of years is required in order to lay down any rule which may possess practical value. I may, perhaps, be privileged to fill up the outline now begun, on some future occasion; meantime I would call the attention of the medical referees in the business of life assurance to the important place which *apoplexy*, *consumption*, and *diseases of the heart* occupy in the mortality tables of life assurance, and particularly to the fatal influence which rheumatism exerts in the production of the latter, while they in their turn predispose so powerfully as causes of the former; and in regard to consumption, apoplexy, and all other diseases transmitted by hereditary descent, to the necessity there is of a careful consideration of the family predisposition of those whose lives are proposed for assurance, as well as a minute examination of the party, and patient investigation of the physical signs of disease.

The statistical information now presented, imperfect in many respects as it is, has been obtained with no inconsiderable labour and amidst many discouragements, as every one will perceive must have been the case, who reflects for a moment on the defective character of the returns made during the greater part of the last thirty years, in regard to the personal and family history of the applicants for assurance and the causes of their death. The example set by the Scottish Widows' Fund, and now acted upon by numerous offices, of requiring full information on these important points, will, if generally followed, and cordially responded to by medical referees, be productive of results, which will prove highly honourable to the profession, beneficial to science, and useful to the public.

TABLE, showing the Diseases of which persons Assured by the Scottish Widows' Fund Society have died, from 1815 to 1845 inclusive, and the Age, by decennial periods, at which death occurred.

Causes of Death.	20 to 30.	30 to 40	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Above 80	Total.
CLASS I.								
Scarlatina, .....	...	4	...	...	...	...	...	4
Diarrhœa, .....	...	1	...	2	1	...	...	4
Dysentery,	1	...	1	...	3	...	...	5
Cholera, .....	...	2	...	2	1	...	...	5
Influenza .....	...	...	3	1	5	2	...	11
Ague, .....	...	...	1	...	...	...	...	1
Fever (Remittent)	1	...	...	...	...	...	...	1
Fever (continued)	2	8	21	12	10	1	...	54
Erysipelas,	1	...	2	1	2	1	1	8
	5	15	28	18	22	4	1	93

TABLE—*Continued.*

Causes of Death.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Above 80	Total.
CLASS II.	5	15	28	18	22	4	1	93
Hæmorrhage,.....	1	...	1	1	1	1	...	5
Dropsy,.....	...	1	2	3	2	1	...	9
Abscess,.....	...	...	1	...	...	1	...	2
Mortification,.....	1	...	...	3	3	...	...	7
Cancer,.....	...	...	2	2	2	...	...	6
Tumour,.....	...	2	...	2	...	1	...	5
Gout,.....	...	...	...	1	...	1	...	2
Atrophy,.....	...	...	...	1	1	...	1	3
Debility,.....	...	1	1	1	4	3	...	10
Sudden Death,....	...	...	...	1	1	1	...	3
CLASS III.								
Cephalitis,.....	2	3	10	6	5	...	...	26
Apoplexy,.....	2	2	12	12	17	6	...	51
Paralysis,.....	...	1	3	6	5	6	...	21
Convulsions,.....	...	...	1	1	...	...	...	2
Tetanus,.....	...	...	1	...	...	...	...	1
Epilepsy,.....	...	...	...	...	...	1	...	1
Insanity,.....	...	2	2	1	...	...	...	5
Delirium Tremens	...	2	3	1	...	...	...	6
Disease of Brain, ..	1	4	4	7	2	1	1	20
CLASS IV.								
Laryngitis,.....	...	1	4	1	1	...	...	7
Bronchitis,.....	2	3	2	6	4	1	...	18
Pleurisy,.....	...	...	...	...	1	...	...	1
Pneumonia,.....	...	1	3	4	1	1	...	10
Hydrothorax,.....	...	1	4	6	4	3	1	19
Asthma,.....	...	...	...	2	1	1	...	4
Consumption,.....	9	35	16	7	5	...	...	72
Disease of Lungs, ..	1	4	3	2	5	5	1	21
CLASS V.								
Pericarditis, .....	...	2	2	...	...	...	...	4
Aneurism, .....	...	...	...	2	...	...	1	3
Disease of Heart, ..	...	7	9	13	13	3	1	46
CLASS VI.								
Gastritis Enteritis	1	2	2	1	1	...	...	7
Peritonitis,.....	1	1	...	1	...	...	...	3
Ulcer. of Bowels, ..	...	2	2	1	2	1	...	8
Hernia,.....	...	...	...	...	1	...	...	1
Colic or Ileus,.....	...	...	1	2	1	1	...	5
Hæmatemesis,.....	...	1	...	1	...	...	...	2
Disease of Stomach and Bowels,.....	1	4	5	10	8	2	...	30
Hepatitis, .....	...	...	2	1	1	1	...	5
Jaundice,.....	...	1	1	...	1	...	...	3
Disease of Liver, ..	...	2	4	4	2	1	...	13
	27	100	131	131	117	47	7	560

TABLE—*Continued.*

Causes of Death.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Above 80	Total.
CLASS VII.	27	100	131	131	117	47	7	560
Ischuria,.....	...	...	...	...	...	1	...	1
Diabetes,.....	...	...	1	1	1	...	...	3
Cystitis,.....	...	...	...	...	...	2	...	2
Stone,.....	...	...	...	...	1	...	...	1
Disease of Kidney,	...	2	1	4	1	...	...	8
Disease of Bladder	...	...	...	1	1	5	1	8
CLASS VIII.								
Childbirth,.....	...	2	1	...	...	...	...	3
Disease of Uterus,	...	...	2	...	...	...	...	2
CLASS IX.								
Rheumatism,.....	...	...	...	1	1	...	...	2
Disease of Joints,	...	1	...	...	...	...	...	1
CLASS X.								
Violent Death,....	1	4	7	5	1	...	...	18
CLASS XI.								
Old Age,.....	...	...	...	...	...	2	4	6
CLASS XII.								
Causes not specified or ascertained	...	...	...	...	...	...	...	27
Total	28	109	143	143	123	57	12	642

3, CHARLOTTE SQUARE, 1st October 1846.

ARTICLE II.—*Contributions to Pathology and Rational Medicine.*
 By JOHN HUGHES BENNETT, M.D., F.R.S.E.; Lecturer on
 Pathology and the Practice of Physic; Director of the Polyclinic
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NO. IV.—*On Exudation.* PART I.—*Its Causes.*

THE term exudation has been introduced into pathology not only to express the act of the liquor sanguinis passing through the vascular walls, but the fibrinous portion of the liquor sanguinis itself, when it has coagulated on the surface or in the substance of any tissue or organ of the body. This term meets a difficulty which

morbid anatomists have long experienced. They know that many recent deposits are the result of exudation, when, without a more minute examination, it would be impossible to say whether the morbid product be the result of simple inflammation of tuberculization or of cancerous growth. Indeed it is daily becoming more evident, that in many cases the naked eye is unable to determine whether this or that alteration belongs to what has usually been considered as lymph, pus, tubercle, &c. In all such cases, the word exudation is peculiarly appropriate, and it has even come into pretty extensive use to signify various kinds of recent morbid deposits.

Exudation in every case results from a previous series of changes which has taken place in the capillary vessels, and blood contained in them. These changes, as we are enabled to follow them in the transparent parts of animals under the microscope, are seen to occur in the following order—1st, The capillary vessels are narrowed, and the blood flows through them with greater rapidity. 2d, The same vessels become enlarged, and the current of blood is slower, although even. 3rd, The flow of blood becomes irregular, it oscillates; that is, goes forwards and backwards, and sometimes stops for a period, and then resumes its course. 4th, All motion of the blood ceases, and the vessel appears fully distended. 5th and lastly, The liquor sanguinis is exuded through the walls of the vessel, sometimes accompanied by extravasation of blood corpuscles, owing to rupture of the capillaries.

In another place¹ we have endeavoured to show that the explanation of the narrowing and enlargement of the capillaries, first brought forward by Hoffmann, and supported by Haller, Cullen, and John Hunter, is the correct one; that is to say, these phenomena are occasioned by the action of various stimuli, operating upon a vital contractility inherent in the vessels, whereby they exhibit phenomena analogous to the spasm and paralysis of muscles: a view not only favoured by numerous physiological experiments, but by the fact that the structure of these minute vessels is almost identical with that of non-voluntary muscular fibres. Such a theory, however, although it is in harmony with every known fact, and enables us to explain both the contraction and enlargement of the extreme vessels, and the increased and retarded flow of the blood, does not enable us to account for its stoppage, or the occurrence of exudation.

This effect has been attributed to obstruction. In a dilated capillary, it is possible that there where only one blood corpuscle passed, now more, two or three abreast, may pass; that these, by pressure, may receive a flattened form, and thus become wedged together, so as to occasion in the current of blood a mechanical obstruction which, once produced, may extend further. This mode

¹ Treatise on Inflammation.

of explanation, however, is opposed to observation ; for, 1st, The stoppage of blood does not, as is supposed, proceed from one point ; it takes place over a portion of the capillary system more or less extensive at the same time ; 2d, The lymph space near the walls of the capillaries is still evident when the blood moves slowly, and only disappears at the moment it is arrested. We cannot, then, attribute stoppage to a mechanical wedging of the blood corpuscles.

Of late years, however, a modification of this doctrine has been brought forward, based on certain observations made by Mr Addison of Malvern, and Dr C. J. B. Williams of London. According to these writers, the obstruction is not caused by the yellow corpuscles, but by the colourless ones, which are greatly increased in number, and adhere to the sides of the vessel. The following quotations contain the views of these gentlemen.

“ In the frog’s foot, two days after the application of *salt*, in some of the larger capillaries or smaller veins, there are a great number of globules, No. 3, (lymph globules;) and it is quite extraordinary to observe the difference in movement between these round speckled globules and the oval ones; the blood globules pass in a continued stream, while in the same fluid, in the same vessel, are a great multitude of other (lymph No. 3) globules, which do not move, or do so very sluggishly: every now and then they move slowly, apparently urged on by the repeated knocks they receive from the blood globules. It would appear that after the capillary vessels have been acted on by the salt, the round (lymph) globules accumulate, in an unusual manner, and the blood globules repeatedly slide over and knock against them. In some of the vessels, there is a rapid stream of blood in the centre, whilst at the circumference there are many stationary, round, spotted globules, which do not obey the impulse which urges the stream of blood, but remain or move on slowly by little starts, at uncertain intervals, and with unequal pace.”—*Mr Addison, Medical Gazette*, January 29th, 1841.

“ I have never seen a solitary elliptical disc adhering to the sides of a vessel ; and whenever one was arrested in its course, it was from its becoming hitched by one or more of the adherent round globules. But what appeared to me most remarkable with regard to these white globules, was the great difference in their number under different circumstances. In young frogs, and in those much subjected to experiment, they are always present ; but in healthy adult frogs, placed under the microscope, with as little handling of the web as possible, there were few or none to be seen. I have watched for ten minutes at a time without seeing one : the motionless layer was very thin but clear, and all the blood particles in the larger vessels seemed to move at the same rate of speed. By pressure of the finger on the web, partial stagnation was produced in many of the vessels, and when this yielded to the returning currents, the walls of the vessel were seen studded with the white globules ; whilst many others of the same kind rolled over them slowly in the direction of the current. I have before mentioned that a similar result ensued after the web had been stimulated by capsicum or an aromatic water. Even in the rapid flow of blood following these applications, minute globules could be seen creeping slowly along the transparent outline of the larger vessels ; and as the arteries contracted, and the flow through the other vessels became less rapid, the number of these globules increased, their motion became slower, and many adhered to the sides of the vessels. If the stimulus used was rather strong or long applied, the number of sticking globules was so great as to prevent the red particles from passing ; and these becoming impacted in increased numbers,

gave to the obstructed vessels a uniform and deeper red colour. When the stimulation was moderate, and equally applied to the web, the stagnation usually took place first in some of these anastomosing veins in which the current is naturally slow and varying in direction; but when a stronger stimulus (as an essential oil) was used, the stagnation speedily ensued at the point of its application; in fact, unless very minute quantities were employed, the stagnation was almost immediate and extensive."—*Dr Williams, Medical Gazette*, July 23, 1841.

"It seems, then, to be well established that an essential part of inflammation is the production of numerous white globules in the inflamed vessels; and that the obstruction of these vessels is mainly due to the adhesive quality of these globules. The production of these globules must probably be considered as an ultimate fact in the history of inflammation and nutrition; but it may be observed, that sometimes it seems to be the direct effect of an irritant acting on the blood-vessels and their contents, in other instances it seems rather to result from determination of blood into previously congested capillaries. Any circumstances causing continued determination of blood, where congestion is already present, will occasion the production of the white globules, and consequently, inflammatory obstruction may ensue."—*Dr Williams' Principles of Medicine*, pp. 212-3, 1843.

When the paragraph last cited was first published, we observed, "without denying the occasional accumulation of these lymph corpuscles, in certain vessels, I must record my conviction that inflammation, accompanied by complete obstruction, may be frequently occasioned independent of any such phenomenon."—(*Edin. Med. and Surg. Journal*, October 1843.) Since then we have anxiously waited until other authorities should repeat the experiments and observations above detailed. No one seems to have done this, although the theory which has resulted from them has, on the authority of its founders, been copied into manuals of physiology, into lectures delivered to students, and even transferred into the recent volume published by Rokitanski of Vienna. Under these circumstances, it becomes important to examine more closely into the alleged facts and reasonings on which this theory of the cause of obstruction in the vessels has been founded.

In the autumn of 1843, we carefully repeated all the experiments described by Mr Addison and Dr Williams, with Dr Redfern, now Professor of Anatomy in King's College, Aberdeen. Since then we have repeated them four separate times, twice publicly in November before the class of pathology and practice of physic, and twice in June, in conjunction with the gentlemen attending the class on histology. We have just terminated a series of these experiments for the fifth time, and the results have been so decided and satisfactory, as to render it imperative upon us to publish them, and to demonstrate the errors into which the promulgators of this doctrine have fallen.

It is true that in young frogs, and in many full grown ones fresh from the country, the colourless corpuscles are very numerous. It is equally true that in old frogs, and in many which have been long kept, they are few in number. It is in the web of such animals that, according to Dr Williams, the increase of the colourless

corpuscles, as the results of irritation, are well observed. Now, we have applied salt, capsicum, and essential oils, and have never seen these corpuscles increased in number, relatively to the yellow corpuscles. When, by means of these irritants in young frogs, congestion is occasioned, all the blood globules within the vessel increase in number, and that of the colourless corpuscles is of course augmented. But the yellow corpuscles are also more numerous, and neither we nor any of the assistants (and more especially Dr Wilkinson, our assistant of this year) have ever seen that the former existed relatively in greater proportion.

Again, in old frogs, in the vessels of which the colourless corpuscles are very few, we have frequently excited stoppage and exudation, without seeing any colourless corpuscles from the commencement of the process to the end. In other words, on the addition of acetic acid, or other irritants, all the phenomena we have described make their appearance, producing oscillation and stoppage of the current of blood, crowding together of the yellow corpuscles, without the appearance of one colourless one. It often results, however, from the action of re-agents, especially of acetic acid, that the nuclei of the epidermic cells covering the web are rendered very distinct. These nuclei are round colourless bodies, exactly resembling in size and appearance the colourless blood corpuscles. It consequently happens, that the vessels running between the two layers of epidermis present at different foci an appearance as if the internal wall of the vessel was studded with colourless corpuscles. This, I am persuaded, is the phenomenon which has given rise to the idea of the calibre of the vessel being crowded with them. Under such circumstances, however, it may be seen, that the parenchyma of the web in the meshes of the capillary plexus is also studded over with similar nuclei, owing, of course, to the epidermis being spread uniformly over the whole web. Mr Addison says that colourless corpuscles escape from the vessel into the surrounding tissue, a circumstance which is physically impossible, without rupture of the vascular wall, although the origin of the statement may probably be explained by the facts we have pointed out.

If farther proof is required, it may be found on the examination of the circulation in the tail of the tadpole. Here the vessels are so easily excited and paralyzed by irritants, that before stoppage of the blood they frequently burst, causing extravasation of blood, and yet without any increase in the number of colourless corpuscles. Moreover, not only have none of the accurate histologists of Germany, who have carefully watched the inflammatory process, ever observed an increase in the number of these bodies, but this supposed occurrence is directly negatived by recent observations and experiments of Remak, who has shown that their increased number in the blood follows large abstractions of that fluid, and that the portions first drawn in inflammations contain very few.

It may be concluded, then, that there is no increase of the white corpuscles in inflammation, no crowding together of them, so as to produce obstruction of the vessel; no escape consequently into the surrounding tissue; and that the observers who have stated these circumstances to have occurred have mistaken the nuclei of the epidermic cells in the web of the frog's foot for these structures.

The cause of stoppage in the capillaries, therefore, is yet to be ascertained, unless we have recourse to the hypothesis of increased attraction between the blood and parenchyma, which we hold to be philosophical, and perfectly consistent with all known facts. It has been objected to it, however, that the term attraction offers no explanation; it is merely confessing our ignorance by another word. Some argue that it may be even injurious, inasmuch as its acceptance, by giving an apparent explanation where there is really none, may check the progress of inquiry. But they who employ this term use it only in the sense of those who express ultimate facts in physics, by speaking of the earth's attraction, or of electrical attraction. They are ready to abandon it the moment a better explanation can be given; but, most assuredly, this is not to be sought in an increased number of, and mechanical obstruction caused by, the colourless blood corpuscles.

Dr George Robinson of Newcastle-upon-Tyne has lately attributed the exudation itself to lateral pressure exercised on the walls of the vessel by the *vis a tergo*. This theory is founded on experiments in living animals, consisting of dragging out the kidney through a wound in the side of the animal, forcibly freeing it from its investing membrane, then putting a ligature round the renal vein, and returning the organ to the abdomen. As the result of this operation, it was observed that the urine was frequently rendered albuminous, and that on one occasion there was a mass of lymph found in the bladder. The conclusion arrived at is, that mechanical stoppage of the blood, commencing in the vein, caused congestion of the organs, followed by exudation, that is, produced a true inflammation.

Accepting the facts as stated by Dr Robinson, whom we believe to be a very conscientious experimenter, are we warranted, from what we know of the effects of ligature on, and obstruction of veins, to allow that the stoppage so occasioned is capable of being communicated to the capillaries, so as to cause in them congestion followed by exudation? We think not. We have seen very large veins tied in surgical operations, and have frequently found them completely obstructed from phlebitis, without having produced exudation from the capillaries. The phenomena of phlegmasia alba dolens are very different from those of a true inflammation. In short, although we may have serous effusion as the result of venous obstruction, we never have exudation. On the other hand, may not the facts recorded by Dr Robinson be at once accounted for by the

injury to which the capillaries on the surface of the kidney must have been subjected in his experiments? Violently detaching the surface of the organ from its connexions, and exposing it to the air, is a sufficient cause for inflammation, without having recourse to the idea of its originating in stoppage of the vein.

The opinion we have long held, therefore, of the cause of exudation, is in no way altered by the observations of Mr Addison and Dr Williams, on the one hand, or by the experiments of Dr Robinson, on the other. We believe that it is to be sought in a primary change in the capillary vessels, causing contraction and dilatation of their calibres: that this change is analogous to the spasm and paralysis of non-voluntary muscles, and is in its nature purely vital; that the stoppage of the blood under such circumstances, and the exudation of blood plasma, are ultimate facts, which cannot, consistently with observation, be explained by obstruction of the blood corpuscles within the vessels, or by impeded circulation in the veins; and that the increased throbbing of the arteries leading to the inflamed parts, and the phenomena of so-called "determination of blood," are the results, and not the causes, of the changes in the capillaries.

ARTICLE III.—*On the Nature and Source of the Contents of the Fœtal Stomach, being the substance of a Paper communicated to the Royal Society of London, in June last, by* GEORGE ROBINSON, M.D., Fellow of the Royal Medical and Chirurgical Society of London, and Joint Lecturer on Materia Medica and Forensic Medicine in the Newcastle-on-Tyne Medical School.

WHILST all physiologists who have examined the appearances presented by the alimentary canal of the fœtus, agree in representing the *small intestines* as actively engaged in the function of digestion, a remarkable difference of opinion has prevailed as to the source of the nutritious matter there submitted to that process. Harvey, who, of modern physiologists, alone supposes it to enter the intestine through the stomach, adopts the views of the older writers, and concludes, from his observations, that it is the liquor amnii swallowed by the fœtus, which affords the material for chylification. Geoffroy Saint-Hilaire, perceiving the anatomical objection to this doctrine, which arises from the fact of similar appearances having been found in the intestinal canal of fœtuses born with an imperforate œsophagus, would seem to suppose that the superior portion of the intestines, being irritated by its contact with the bile, secretes a nutritive mucus, by the digestion of which chyle is formed. And Dr Robert Lee, who is, I believe, the most recent investigator of this subject, has been led by his researches to the conclusion that the liver is the source of the nutritious fluid

found in the alimentary canal of the fœtus; the function of that gland being, in his opinion, not merely that of separating from the blood an excrementitious substance, but also that of pouring into the fœtal intestines, through the hepatic duct, a quantity of albuminous fluid.

Now, even though a quantity of albumen may be present in the bile taken from the hepatic duct, it is surely desirable that the impossibility of the nutritive contents of the small intestine having been derived from the fœtal stomach should be clearly demonstrated, before we admit the correctness of this latter conclusion as to their source. But it will be seen by a reference both to systematic writers, and to the authors who have more expressly treated of the fœtal functions, that the evidence yet advanced is by no means sufficient to establish any positive opinion on this point.

Dr Lee thus describes the result of his own examination of the stomach in several human fœtuses:—"The stomach of the fœtus I usually found in these cases distended with a semi-transparent, ropy, mucous, and occasionally acescent fluid without any sensible admixture of albuminous or other apparently nutritious matter."¹ Dr Blundell, whose opinions on any point connected with the uterine or fœtal functions I consider to be worthy of every attention, has but the following brief allusion to the subject:—"The stomach of the fœtus is not unfrequently empty or nearly so; and when it does contain anything, if I may judge from some two or three observations, this matter consists of a mucous secretion mixed with the gastric juice."² And in the systematic works on physiology, I do not perceive any mention of the subject further than an incidental statement that the fœtal stomach contains a mucous fluid. The time which I could myself devote to this inquiry, and my opportunities for conducting it, have been too limited to enable me to attempt anything like a full and final settlement of the various questions connected with this department of fœtal physiology. The few facts which have fallen under my notice are, however, sufficiently distinct to establish some positive inferences, and I can only hope that the results of this rude effort may induce others better qualified for the investigation to extend and complete our knowledge of this interesting group of functions.

My attention was first attracted to the subject in the autumn of last year, by an accidental observation of the stomach of a fœtal rabbit, and having subsequently examined the fœtuses of other animals, I met with a number of curious facts, of which the following is a brief account.

OBSERVATION 1. During the last ten days of its uterine existence, the stomach of the fœtal rabbit is invariably distended with a semi-

¹ Philosophical Transactions, 1829. Part i. p. 121.

² Lectures edited by Lee and Rogers, p. 967.

transparent fluid, of a dark green colour, extremely viscid, and coagulating by heat into a solid opaque mass. Viewed microscopically, it is found to consist of a clear liquid, suspended in which are numerous cells of different shapes, and several large globules of oil. When heated in a watch-glass over a spirit lamp, it assumes the appearance of a piece of baked custard; and on dropping it into boiling water, it also instantly solidifies. Dried by a more gentle heat, it forms a brittle substance like gum, which, on being dissolved in water, answers to every test of albumen. A small quantity of the fresh liquid which had been excluded from the air in a test tube, on being examined at the end of six months, though it had acquired a disagreeable odour, was found to retain all its chemical properties, coagulating as readily as when recently obtained. The stomach was in these cases extremely pale, and presented very little vascularity; whereas the small intestines were plentifully supplied with blood-vessels. The chymous substance which the latter contained, was evidently derived from the stomach, becoming however more opaque, as it gradually assumed the situation of the meconium. This latter substance, of a bright green colour, exhibited a curious reaction with strong nitric acid, the addition of a few drops of the latter instantly causing it to assume a bright scarlet hue.

In three instances, a liquid precisely resembling that contained in the stomach, escaped from the mouth of the animal as it lay on its side before being opened; and in two other cases, the same substance was found in the œsophagus. The liquor amnii of these animals is a transparent, almost colourless fluid, exhibiting scarcely any indication of the presence of albumen. In two instances where I had an opportunity of watching the foetus through the transparent membranes, it was observed to swallow the liquor amnii, and from its continuing to perform the act of deglutition after its removal from the uterus, the stomach was found extremely distended with air, each mouthful of which appearing as a little vesicle, was preserved distinct by the viscosity of the stomachic fluid. The facts detailed in this observation are drawn from the examination of more than thirty animals.

OBSERVATION 2. The uterus of a rabbit, killed about the *tenth day* after impregnation, contained six foetuses, an inch and a half in length, and the tissues of which were still very gelatinous. Through the transparent walls of the abdomen, the dark globular stomach of each was distinctly visible; and on opening the peritoneal cavity, it constituted, with the exception of the liver, the most prominent object presented to the eye, being in every case distended with a liquid of a dark green colour. This fluid was perfectly transparent, *presented no microscopical objects, was not at all viscid, and did not undergo any change on the application of heat or nitric acid.*

The intestines were in these animals extremely minute and tortuous, translucent, and almost void of meconium, or any other

coloured substance. The quantity of liquor amnii was greater than that met with in the former observations, and its opacity, on the application of the tests for albumen, if anything rather more distinct.

OBSERVATION 3.—In a foetal lamb examined at a very early period (for its weight did not exceed two ounces), the stomach contained two drachms of a clear, citron-coloured liquid, which was neither viscid, nor did it present any opacity or change on the application of heat and nitric acid. The quantity of liquor amnii was relatively large: six ounces of it were collected, and in its colour, consistence, and chemical properties, it precisely resembled the fluid obtained from the foetal stomach. The intestines were very minute and tortuous, and with the exception of a small quantity of serous fluid, apparently empty.

OBSERVATION 4.—In another foetal lamb which was fully developed and ready for birth, the stomach, on being opened, presented a substance differing very much from the liquid just described. It contained an ounce of a viscid, transparent semifluid mass, suspended in which and gradually subsiding in it, so as to form a sediment, were numerous minute, oval, brown particles, in shape and colour very much resembling grains of linseed, but somewhat larger, and around each of them was a quantity of an extremely tenacious, gelatinous substance of a yellow colour. Neither the supernatant liquid nor the liquor amnii evinced the presence of albumen, though both possessed considerable viscosity. A substance precisely similar to the yellow gelatinous sediment found within the stomach, existed in considerable quantities upon the fleece, the legs, and the whole exterior of the animal; *but on the most careful examination I could not detect in any other part of the foetal structures or appendages, a single particle corresponding to the brown oval masses met with in the stomach.*

The intestines, in addition to some meconium, contained a chymous mass, the liquid portion of which was distinctly albuminous.

OBSERVATION 5.—The liquor amnii of a foetal calf (which was examined at a very early period, when its body weighed only nine ounces) was of a citron colour, neither viscid nor coagulable by heat or nitric acid, but instantly formed an opaque membranous coagulum on the addition of a little acetate of lead, or proto-nitrate of mercury. The stomach of the same animal contained two drachms of a fluid, which in every respect resembled the liquor amnii, and which, on standing, did not present any sediment or coloured flocculi. In the intestine was a small quantity of meconium, which on being heated with nitric acid, exhibited the usual change of colour, from a green to a reddish hue.

OBSERVATION 6.—In another foetal calf of considerable size (presumed to be in the ninth month of uterine existence, and which was examined twelve hours after death), the stomach contained four ounces of a yellow glairy fluid, in which, as it lay in the stomachic cavity, were suspended three or four fibrinous masses of a dark brown colour. On allowing these matters to stand for some hours in a cylindrical glass vessel, the quantity of the coagulum or sediment was very much increased, so that its bulk ultimately became equal to the tenth part of that of the supernatant liquid. This latter was slightly opaque from the presence in it of innumerable minute globules, resembling those formed during the coagulation of albumen, and though extremely viscid, it furnished no coagulum on the application of heat and nitric acid singly and in conjunction, the only effect produced being the gradual formation of a pellicle on its surface as the liquid evaporated. Of a few other tests which were applied, sulphuric and muriatic acids caused no change whatever in the appearance of the fluid; ferro-cyanide of potassium, assisted with acetic acid, tincture of galls, sulphate of copper and alum, slightly increased its opacity, and the addition of a drop of solution of acetate of lead or proto-nitrate of mercury, was instantly followed by the appearance of an opaque membranous coagulum.

Imbedded in the coagulum or sediment, which was of a reddish brown colour and semi-transparent, were several thin yellow scales, perfectly opaque, and insoluble in boiling liquor potassæ, whereas the remainder of the fibrinous mass readily dissolved in that liquid. From the clear solution thus obtained, copious flakes were produced on its neutralization by muriatic acid.

In the mouth of this animal was found some glairy fluid, very similar to that met with in the stomach; and lying on the outer surface of the gums, particularly those of the lower jaw, were several of the peculiar yellow flakes just described.

The liquor amnii was clear, almost colourless, and, though somewhat viscid, did not with the usual tests afford any indication of albumen, being coagulated only by acetate of lead and proto-nitrate of mercury. *It contained none of the matters which constituted the coagula found in the stomachic fluid.*¹

OBSERVATION 7.—The stomachs of two newly born kittens contained a brown, semi-transparent, viscid substance, which, on

¹ A quantity of the peculiar milky fluid, secreted by the spongy structures which receive the highly vascular foetal cotyledons, and collected from them by pressure, on being heated, instantly coagulated into a firm mass. With the single exception of its colour being rather that of cream, than a distinct yellow, this substance precisely resembled the coagulum obtained by heating the contents of the stomach of the mature foetal rabbit. And in its chemical and nutritive properties this secretion presents a striking analogy to the colostrum furnished to the animal immediately after birth. The secretion of these structures was, in the mature foetal lamb, also found to possess a similar property.

the application of heat or nitric acid, evinced the presence in it of a considerable quantity of albumen, but did not wholly coagulate. The portion which retained its transparency did not, however, manifest any disposition to dissolve in the boiling water. The contents of the small intestine were also albuminous.

In the œsophagus and fauces of one of these animals was found some of the same brown, viscid, semi-albuminous substance; and it may also be worthy of mention, that the quantity present in the stomach of this animal (which had lived a few hours after birth) was much less than in the other case.

OBSERVATION 8.—In each of two puppies, drowned immediately after birth, the stomach contained about half an ounce of a transparent, slightly viscid fluid, suspended in which were several large flakes of a light yellow or lemon colour, each flake being surrounded by an extremely tenacious gelatinous substance. On testing the clear supernatant liquid, it was found to be distinctly albuminous, an opaque stratum of coagula being deposited on the application of heat and nitric acid. A portion of one of the flakes and the adjacent mucus being examined under a high magnifying power, presented, in addition to epithelial scales and some oil globules, several minute particles of different shapes, a few appearing as perfect circles or rings, others of a crescentic form, and the remainder as rhomboidal and linear particles.

OBSERVATION 9.—The stomach of a human foetus of about the fifth month, examined thirty hours after birth, was found moderately distended. On laying it open, a reddish coloured fluid escaped, and this was followed by three or four semi-transparent gelatinous masses. The largest of these was then placed in a watch-glass containing distilled water, and heat applied. As the temperature of the water approached the boiling point, numerous flakes were seen to radiate from the floating body; and as the process of ebullition proceeded, this latter became throughout its whole substance firm and opaque, so as to constitute a perfect coagulum. Another mass was treated with nitric acid, and wherever the latter came in contact with it, an instantaneous coagulation took place. The contents of the small intestines were arranged in separate portions, in the order of their proximity to the stomach; and the liquid pervading them, on the addition of the same test, also evinced the presence of albumen, the relative quantity of this principle gradually decreasing as the chymous mass assumed the properties of meconium. My friend Dr Glover was present at this observation, and kindly assisted me in its performance.

OBSERVATION 10.—The stomach of an infant, supposed to have died immediately after birth, but which was not examined till about forty hours afterwards, contained half an ounce of a remarkably

viscid, reddish, semifluid substance, for the most part transparent, but presenting in its interior and on its surface, several opaque white striæ. On boiling a portion in distilled water, it became uniformly opaque, but did not acquire much additional firmness. Heated with strong nitric acid, a clear solution was obtained, from which, on its neutralization by liquor ammoniæ, a copious flaky deposit took place; and the same circumstance occurred with an alkaline solution, when rendered neutral by the addition of nitric acid. The white striæ were of a fatty nature, as evinced both by their chemical properties and microscopical appearance, being chiefly constituted of fat cells. The transparent viscid substance contained epithelial scales, oval nucleated cells, and a diffused granular matter. This substance could be traced into the duodenum, where it gradually became more opaque, and evidently constituted the material for chymification.

From all these facts, we may, I think, draw the following general conclusions:—

1. That the stomach of the fœtus, during the latter period of its uterine existence, invariably contains a peculiar substance, differing from the liquor amnii, and generally of a nutritious nature.

2. That in its physical and chemical properties, this substance varies very much in different animals, being in no two species precisely similar.

3. That in each fœtal animal the contents of the stomach vary much at different periods; in the earlier stages of its development, consisting chiefly of liquor amnii, to which the other peculiar matters are gradually added.

4. That the liquor amnii continues to be swallowed by the fœtus up to the time of birth; and consequently after the formation of those matters, and their appearance in the stomach.

5. That the mixture of this more solid and nutritious substance with the liquor amnii constitutes the material submitted to the process of chymification in the fœtal intestines.

The opinion that the fœtal chyle is principally formed from these matters, however, by no means implies a supposition that the *nutrition* of the fœtus is thus accomplished. For the actions which proceed in the chylopoietic viscera of the fœtus are, I imagine, chiefly useful from their gradually preparing the different organs for the important functions assigned to them in the economy of the mature animal. Whereas the nutrition of the fœtus is undoubtedly effected by its placental vessels, the venous capillaries of which (or to speak more correctly, the streams traversing them) possess an absorbing power precisely similar to that of the mesenteric veins. And as a portion of the fœtal blood, charged with the albuminous substance there absorbed, after passing through the umbilical vein, circulates in the blood-vessels of the liver, the presence of an albuminous fluid in the hepatic duct, as noticed by Drs Lee and Prout, is by no means inexplicable. Viewed in this light, the

umbilical vein of the fœtus will answer to the mesenteric veins of the adult, while the ramifications of the hepatic duct, in addition to their ordinary function, may be considered as to a certain extent representing the lacteals.

The source of the peculiar substances found in the stomach of the fœtus still, however, remains to be determined. That they are not secreted by the stomach itself is, I think, rendered almost certain, by the uniformly pale, undeveloped condition of that viscus during fœtal life, and by the circumstance of their being occasionally met with in the fauces and mouth of the animal, as in observations 1, 6, and 7. And coupling this latter fact with the negative argument constituted by the impossibility of assigning their production to any other organs, I am disposed to regard them as the secretion of the *salivary glands*, between the development of which and the gradual formation of these matters a certain degree of connection has appeared to me to exist.

Having thus briefly mentioned the facts met with in the course of this investigation, and indicated the conclusions which appeared to me to flow most directly from the consideration of those phenomena, I shall for the present abstain from any further inquiries into this department of physiology. But, before concluding this communication, I may be permitted to relate one or two additional observations, which tend to establish an interesting and important relation between two of the chief functions in the animal economy, viz. respiration and digestion.

I have before had occasion to corroborate, from my own observation, the statements of other inquirers as to the slight vascularity and torpid condition of the stomach during fœtal life. It became, therefore, an interesting problem to trace the gradual development of its digestive power, and to ascertain the precise period at which the effects of this power became perceptible.

The contents of the fœtal stomach were, in several of the foregoing observations, tested by litmus paper with very different results, the gastric fluid being in some cases neutral, sometimes alkaline, and in a few instances feebly acid. As the tissues and fluids of the fœtus, however, always manifest a strong tendency to acescent decomposition, and as the indication of acidity was generally noticed in cases where some delay had taken place in the examination of the gastric contents, I am not prepared to deny the possibility of this acescency having been the result of chemical changes taking place after death. A far more satisfactory test of the presence of the proper gastric juice, and consequently of the commencement of its digestive function by the stomach, was, I thought, to be found in the chemical action of that secretion upon albuminous fluids. And, as a liquid readily coagulating upon the application of all the common tests for albumen exists naturally in the stomach of the mature fœtal rabbit, a few observations upon these animals, per-

formed at different periods after birth, promised to throw some light upon the subject.

OBSERVATION 11.—Two rabbits from the same litter were examined at the end of thirty hours after birth. In one (which, from the appearance of the lungs, had evidently respired, but which was found dead within a few hours after the presumed time of birth), the stomach, both as regards its vascularity and the nature of its contents, precisely resembled that of the advanced fœtus of the same species. Its coats were pale, and the blood-vessels distributed through them scarcely perceptible; while the substance within exhibited all its usual properties, being the same green, transparent, viscid, semi-fluid, coagulable mass as that invariably met with in the mature fœtus.

But the stomach and its contents in the other rabbit (which, though separated from the doe, had lived up to the moment of examination) presented a very different appearance. Its coats were beautifully injected with innumerable blood-vessels, and their thickness was apparently increased; whilst in its interior was *a large flattened coagulum of a greenish-yellow colour*, possessed of considerable tenacity, and exhibiting in its substance, when viewed microscopically, several oil globules, similar to those noticed in the uncoagulated matter.

Nothing could be more striking than the difference between these two stomachs; and, from a single positive observation like this, we are, I think, justified in concluding, that the formation of the gastric juice does not take place till the act of respiration has proceeded for a certain length of time, and rendered the oxygenation of the blood tolerably complete. In two other rabbits, killed at the end of twenty-four hours after birth, the albuminous contents of the stomach were similarly coagulated, its coats being also highly vascular, and a portion of the same green coagula being found in the duodenum. All these animals were removed from the doe before any milk could have been swallowed. In the following observation the young animal was allowed to feed with the rest.

OBSERVATION 12.—A young rabbit being killed the third day after birth, was instantly examined. The coats of the stomach, which was very much distended with food, were highly vascular, so as to assume a rosy tint. It contained a great mass of coagulated milk, in the midst of which, and rendered conspicuous by the snow-white ground on which they were placed, appeared two half-digested coagula, of a dark greenish-brown colour. These were evidently the remains of the fœtal secretion; and, in the duodenum of the same animal, at the distance of two inches from the stomach, were several small acicular particles of a fatty nature.

ARTICLE IV.—*Alveolar Hemorrhage Compress, constructed by Dr R. REID, Dentist, Edinburgh, with an Engraving.*

MEDICAL statistics record many cases of alveolar hemorrhage resulting from the extraction of teeth, some of which have terminated fatally, notwithstanding every means having been resorted to that science could dictate or ingenuity suggest. A large number of cases, more or less difficult of control, are constantly occurring, that never find their way into medical periodicals; and most practitioners of ordinary standing will admit that in the course of their practice they have had alarming instances of this troublesome disease.

Hemorrhage, as the most formidable result of extraction, has engaged my attention for some time, with the view to devise a mode of meeting it successfully; and the result of my labours I now seek to lay before the medical profession and the public.

The nature and cause of this disease seem as yet to be enveloped in much obscurity, and no positive result has been arrived at as to whether the treatment ought to be constitutional or local. The agents usually employed are styptics, cold applications, cautery, and pressure. To discuss the relative merits of these would be to travel beyond the limits of this paper, the last mentioned remedy—pressure—being its only object.

Pressure, when well regulated, uniform, and accurate, will be found at once the safest and most effectual remedy that can be employed. In every case that does not speedily yield to the application of styptics, it ought to be had recourse to before the discharge is becoming confirmed, and the soft parts surrounding the cavity deficient in vital energy. If it were necessary, a greater degree of pressure could then be employed without occasioning sloughing or ulceration. The directions laid down by Professor Miller in his able article on the treatment of Hemorrhagic Diathesis (*Monthly Journal* for July 1842) are at once so comprehensive and so simple, as to admit of being understood and acted upon by any one. The requisites to the accomplishing his mode are at hand in every house, and can be had without either difficulty or delay. In every ordinary case this mode will answer the desired end as effectually as any apparatus that may be constructed, the only drawback being the necessarily immoveable position of the lower jaw, which is to be “firmly shut and retained so immoveably by turns of a bandage;” yet this could possibly be an objection in such cases only as might be deemed persistent.

The peculiar advantages of the Alveolar Hemorrhage Compress which I have constructed are as follows, namely:—

1st. Its easy adaptation to the size and shape of the head and face, and to the situation of the hemorrhage.

2d. Its attachment being on both sides of the face, no part of the instrument can be dislodged from the desired position.

3d. Sustenance can be administered to the patient without removal of the instrument, no obstacle being offered to the act of deglutition.

4th. Continuous and graduated pressure may be obtained, and the head may be reclined on either side without pain or inconvenience, while the motion of the lower jaw is very little impeded.

5th. Pressure can be applied on any number of bleeding points at once, on opposite sides of the jaw if required.

6th. In the apparatus for the under jaw, it has been so constructed as to press equally upon the inferior edge of the maxilla, from the symphysis to the angles, by which, and the use of a thick soft padding, all pressure upon the glands situated in the floor of the mouth are avoided. It also partakes of those advantages generally applicable to that for the upper jaw.

I have not sought to introduce this instrument to notice before satisfying myself of its practical utility. Its powers have been tested, and it has been found easy in application and effectual in operation, without proving irksome to the patient.

With these few imperfect remarks I shall proceed to describe the application of the alveolar compress, as delineated on the accompanying plate.

Figures I. and II. represent the apparatus for the upper jaw. A is a sling composed of three leather straps passing across the frontal, epicranial, and occipital regions, and terminating in a ring at B, from which depends C, the attachment to the mouth-piece. These three straps are connected by one at D, passing in the mesial line over the vertex. E the mouth-piece, of silver or plated metal, which is pulled into and retained in its position by the strap C.

Figures III. and IV. show the under jaw. A the chin-plate formed of steel, and extending back nearly to the angles of the jaw, with a thick padding to prevent pressure on the glands situated in the floor of the mouth; it is pierced with holes to admit the steel-rods B to pass down in a perpendicular direction, according to the size and arch of the inferior maxilla. B, the rods attaching the mouth-piece, which is retained in position by the screw-nuts C. D the mouth-piece, with grooves E to admit the holder F traversing in the direction required.

Figure V. represents the holder with a portion of the mouth-piece. A the gum, which retains the pad of lint *in situ*, transfixed by the sharp point B. C the rod attaching it to the plate, the screws D keeping it firmly in its place. The nut E may be removed, and, if desired, the point covered with a piece of cork to protect the tongue.

In applying the compress, the socket is to be prepared in the usual way, by pressing a strip of lint into it, and putting a thick

Fig. I.



Fig. II.



Fig. III.

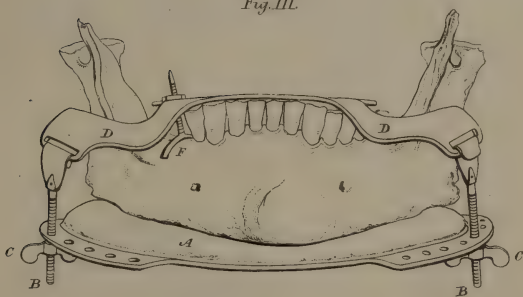


Fig. V.

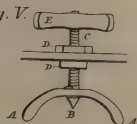
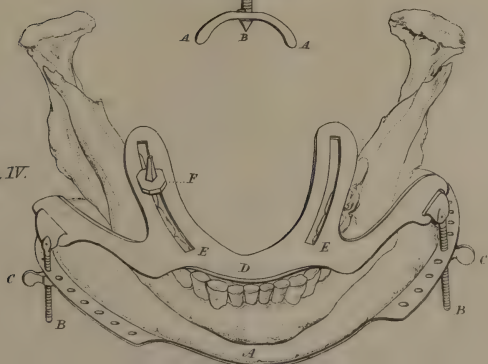


Fig. IV.



padding across it. When the cavity is not deep, I have been in the habit of inserting a piece of cotton saturated with a solution of mastic previous to applying the lint, the adhesive nature of the gum proving of service in retarding the flow of the blood.

I have seen Dr Robert's "Dental Hemorrhagic Compress," and have no doubt it will be found useful. It appeared to me, however, regarding the apparatus for the upper jaw, that, as its attachment to the head was on one side only, "continued and steady" pressure at the desired point could not be obtained from it; and to retain the proper position but for a short time, required such a tightening of the horizontal strap as would prove insupportable. The moveable nature of the scalp would also be a serious impediment to the retention of the instrument *in situ*.

In that for the under jaw the difficulty is increased, there being no contrivance to keep the pad from slipping off; and also, from its shape and limited dimensions, it will be apt to press upon the sub-lingual and maxillary glands.

The instrument is incapable of application on more than one bleeding point; and unless that be in the front of the mouth, it will be impossible for the patient to lie on that side to which the instrument is applied, owing to the projection of the transverse and regulating bars in either instrument, more especially in that for the under jaw. In these views, however, I may be mistaken, and offer my opinion with diffidence.

59, QUEEN STREET,
2d December 1846.

Part Second.

REVIEWS.

1. *Atlas der Pathologischen Anatomie, oder Bildliche Darstellung und Erläuterung der Vorzuglichsten Krankhaften Veränderungen der Organe und Gewebe des Menschlichen Körpers. Zum Gebrauche für Aerzte und Studirende.* Von Dr GOTTLIEB GLUGE, Professor der Physiologie und Pathologische Anatomie an der Universität zu Brussel, &c. Jena, 1843-1846. Leiferungen, 1-12.

Atlas of Pathological Anatomy, or Pictorial Representation and Illustration of the Principal Diseased Changes of the Organs and Tissues of the Human Body. For the use of Medical Practitioners and Students. By Dr GOTTLIEB GLUGE, &c. Jena, 1843-1846. Parts 1-12.

2. *Erläuterungstafeln zur Pathologischen Histologie.* Von Dr JULIUS VOGEL. Leipzig, 1843.

Plates Illustrative of Pathological Histology. By Dr JULIUS VOGEL. Leipsic, 1843.

3. *Pathologische Anatomie des Menschlichen Körpers.* Von JULIUS VOGEL. Erste Abtheilung. Allgemeiner Theil. Leipzig, 1845.

The Pathological Anatomy of the Human Body. By JULIUS VOGEL. First Division. General Part. Leipsic, 1845.

4. *Handbuch der Pathologischen Anatomie.* Von CARL ROKITANSKY, Professor der Pathologischen Anatomie an der Universität zu Wien. 1 Band. Wien, 1846.

Handbook of Pathological Anatomy. By CHARLES ROKITANSKY, Professor of Pathological Anatomy in the University of Vienna. 1 Volume. Vienna, 1846.

5. *Handbuch der Rationellen Pathologie.* Von Dr J. HENLE, Professor der Anatomie und Physiologie in Heidelberg. Erster Band. Einleitung und Allgemeiner Theil. Braunschweig, 1846.

Handbook of Rational Pathology. By Dr J. HENLE, Professor of Physiology in Heidelberg. First Volume. Introduction and General Part. Brunswick, 1846.

6. *The Pathological Anatomy of the Human Body.* By JULIUS VOGEL, M.D., Professor of Clinical Medicine in the University of Geissen. Translated from the German, with Additions, by GEORGE E. DAY, M.A. and L.M. Cantab. London, 1847.

So great has been the advance in morbid anatomy and pathology during the last six years, so numerous have been the novel facts acquired within this period, that not only have new views of almost every diseased process been introduced, but a new language has sprung up in order to explain them. The chemico-physiological school has given rise, not only to physiologists, but to pathologists, whose words and ideas are as different from those of the morbid anatomists of ten years ago, as the modes of expression and doctrines of these were from the disciples of the chemical and mechanical schools of Van Helmont and of Boerhaave. To those whose notions of ultimate morbid processes are connected with the terms congestion, inflammation, tubercle, cancer, &c. the words cyto-blastema, elementary granules, cells, corpuscles, nuclei, nucleoli, filaments, &c. constitute an unmeaning jargon. These, however, are the terms now employed by modern pathologists to express structures and morbid processes which have only lately been revealed to his sight. They serve to convey more exact and simple notions of the nature of disease, and to associate morbid anatomy and pathology with structural anatomy and physiology. Organic

chemistry and the microscope are no longer producing, they have already accomplished, a revolution in the science of medicine. It may be some time before our seats of learning are imbued with the spirit of the new school. It may be longer before its doctrines may be sensibly felt in causing a rational treatment of disease. But of this there can be no doubt, that these new doctrines, the new language, and the new methods of research by means of organic chemistry and the microscope, are everywhere recognised by those who desire exact and positive information. The disciples of Cruveilhier, Andral, Louis, Carswell, Bright, and others of that time, nay, even these illustrious men themselves, are willing to acknowledge that their labours were merely introductory to the more simple and exact researches of their successors. The results of these researches are typified in the works whose titles are placed at the head of this article, and their almost simultaneous publication, conjoined with numerous others that might have been appended to the list, can leave little doubt in the minds of the observant as to the great progress and importance now attained by the new school of pathology.

The first work we have to notice is that of Professor Gluge of Brussels, who was one of the earliest to investigate morbid anatomy histologically, and to point out the existence of several structures since well known and understood. In 1843 he commenced a folio work in numbers, in which he has attempted to represent morbid appearances as they are seen by the naked eye, in conjunction with those observed under high magnifying powers. We say attempted, because the coloured representations he has given of diseased parts, are in most cases so very carelessly executed, as to give anything but a correct, or even recognizable, notion of the lesion sought to be represented. The drawings of the minute structure are also very coarse, but, at the same time, sufficiently characteristic to give to those initiated in such studies a tolerable idea of what is intended to be conveyed. Notwithstanding these disadvantages, the work of Professor Gluge must be considered a very valuable one. The idea of conjoining representations of the ordinary post mortem appearances with those seen under the microscope, is an exceedingly good one, and serves to connect the one kind of observation with the other. We regret that the author has not been better seconded by artists in realizing his excellent plan. The letterpress, consisting of a series of essays having reference to the plates, contains the author's researches, as well as an account of all that has been done by others on each individual subject. The original matter, together with the extensive knowledge and reading displayed, and condensed into small compass, gives exceeding value to the work as one of reference.

Up to the present time twelve numbers have reached us. The subjects are not treated of in any order, as will be seen from the

following summary of their contents:—The first number contains Essays on Fungus Medullaris and Cirrhosis of the Liver. It also contains one of the best plates yet published of gangræna senilis of the foot. The second number treats of gelatinous osteophytes, hepatitis, and cholesteotoma; the third, of melanosis and ossification of the arteries; the fourth, of enchondroma, cystic and fibrous tumours; the fifth, of hypertrophies and inflammation of the spleen; the sixth, of pneumonia. The fourth plate in this number is, from its preposterous gaudy colouring, and dissimilitude from nature, a perfect curiosity. In the seventh number the author speaks of softening of the brain and spinal cord; in the eighth, of fatty and colloid tumours, and of rupture of the heart; in the ninth, of inflammation of serous membranes, hæmatoma, and puerperal metropéritonitis; in the tenth, of nephritis and Bright's disease. The essay on this subject is one of the best yet published. The eleventh number treats of hemorrhages, and the twelfth of cancer in general.

The histological plates and general anatomy of Professor Vogel have been long known to us. The atlas contains twenty-six plates and 291 figures, 270 of which are original and drawn from nature. Twelve of the plates illustrate general, and fourteen special pathological histology. In the first division, the figures are arranged according to the nature of the lesion, without reference to individual textures or organs. It embraces—1. The organic evolution of cells; 2. Inflammation and exudation; 3. Pus; 4. Evolution of fibrous tissue; 5. Regeneration of blood, bone and nerve; 6. Tubercles and fungus medullaris; 7. Lipoma and fibrous tumour; 8. Carcinoma; 9. Cystic tumours and melanosis; 10. Gangrene and enchondroma; 11. Concretions, epiphyta, and epizoa; 12. Epizoa and entozoa. The fourteen plates which refer to special pathological histology comprehend the changes occurring in the brain and spinal cord, lungs, pleura, liver, intestinal canal, vessels, genital organs, kidneys, integuments, and cutaneous glands.

These plates, therefore, give representations of the minute structure, not only of various kinds of lesions, but of these as they affect the principal organs and tissues of the body. The description of the figures is given both in Latin and German. It is not a mere dry detail of the minute structures observed, but contains accounts of the individual cases, and ordinary post mortem appearances found in them. Indeed, in this form, it may be regarded as a complete work on pathological histology, consisting of numerous facts, arranged under distinct heads, and divested of all speculation and theory. The publication of such a work, two years before the appearance of a systematic treatise, insensibly creates a confidence in the author's observations, which a more close examination of it at once establishes. As a work of reference, it is indispensable to the pathologist, and ought to be found in every public medical library in the kingdom.

As regards the execution of the plates, it seems clear to us that, whilst the drawings have been accurately taken from nature, the engraver has not understood them. The consequence of this is, that several tissues are not accurately rendered. We would especially refer to plates 13 and 14 in proof of this, where the nerve tubes, and appearances of exudation in the brain, are wholly misrepresented. The fibrous tissue of the lung in plate 15 is by no means characteristic, and in several other cases, the figures are so overwrought and finely shaded, that the transparent appearance of the structures, as seen under the microscope, has been destroyed. No doubt, this arises from the circumstance stated by the author, namely, that his frequent change of residence during the execution of the plates, and the want of direct communication between him and the engraver, who resided in Nuremberg, often prevented the necessary corrections. For the most part, however, the figures are excellent, and give a perfect idea of the structures represented.

The first part of the work on pathological anatomy, constitutes one of the volumes in the recent edition of Sömmering's Anatomy. But it is undoubtedly, like that of Henle's General Anatomy, which forms a part of the series, an entirely new production. After an introduction, in which the relations of pathological anatomy to the other departments of medical science, are admirably pointed out, the author treats consecutively of the pneumatoses, or abnormal development of gaseous matters; of dropsies; of the pathological relations of the blood; of pathological new formations; of the special relations of organized and unorganized new formations; of the morbid changes in the physical properties of the tissues and organs of the body; of the connexions between the morbid elementary changes; of parasites, vegetable and animal; of malformations; and lastly, of post mortem changes occurring in the body. This volume has now been translated into English by Dr Day, to whose version we shall refer more at length immediately.

Professor Rokitansky's Hand-Book of Pathological Anatomy has been published in numbers, commencing with the third volume, and terminating with the first, which we have just received. The second and third volumes treat of special, and the first of general pathological anatomy. After an introduction, giving a short history of the subject, this volume is divided into ten chapters, treating respectively of—1. Anomalies in relation to the number of parts; 2. Anomalies of size; 3. of form; 4. of position; 5. of connexion; 6. of colour; 7. of consistence; 8. Separation of continuity; 9. Alterations of texture; 10. of contents. The chapter on anomalies of texture is divided into the consideration of organized and unorganized new formations. Under the first head is comprehended inflammation and the various kinds of exudation;

tumours, homologous and heterologous, and tubercle. Under the second, the various concretions and mineral deposits, and the amorphous collections of proteine, and fatty matters. The volume concludes with an excellent account of diseases of the blood and the different dyscrasiæ, which, as containing the peculiar views of the author, is especially deserving a careful perusal.

It cannot be denied that the Vienna professor has published a remarkable work, and one that has given a peculiar character to the school of which he is so distinguished an ornament. It holds a middle place between the views of what we will venture to call the old school of morbid anatomy, and those of the new chemico-physiological school, represented by Vogel and Henle. We think that the author himself has been advancing towards the doctrines of the latter, even during the progress of the work; for, whilst the third and second volumes, which were written first, refer only to dry details, without any allusion to histological facts, the first and most recent volume embraces these as made by others. We conclude, from the work itself, as well as from the errors into which the author has occasionally fallen, that he himself is no histologist. Still, the last volume approaches the histological school in spirit, and many of its generalizations are in essence the same. The work, as a whole, is a splendid monument of labour and practical experience in morbid anatomy;—indeed, so much so, that no pathologist can possibly do without it.

The Hand-book of Rational Pathology, by Professor Henle, is a work of a totally different kind from the others we have noticed. It does not contain a description of diseases either general or local, or of the different morbid lesions thereby produced. It consists of an analysis of the various doctrines and theories which have reigned and are reigning in medicine, as tested by the facts which modern science has revealed. It is, in the words of the author, an endeavour to bring together, in a form congenial to the systematic mind of his countrymen, the physiological facts which observations of the diseased body have brought to light, compared with the theories and hypotheses to which they have given rise, in order that the position of these may be determined in the onward progress of science.

In an introduction exhibiting great learning and extensive knowledge of the actual state of medicine, the author strongly contrasts that system, which has absurdly received the name of “practical” (although the terms empirical, hypothetical, or senseless, would be more appropriate), with that he denominates rational. This is founded upon physiology and pathology, which he considers identical in their nature and objects, and which are only to be cultivated by the same method we employ in advancing natural science. This introduction contains one of the most masterly historical sketches of the various systems which have at different times reigned in

medicine ever published, from the days of Pythagoras down to the existing ones of Rokitansky and Liebig. The body of the work is divided into four divisions, treating respectively of, 1st, the idea and nature of disease; 2^d, of its general causes; 3^d, the local relations of disease; and 4th, its general history, course, duration, and terminations.

In this manner Professor Henle has produced a most philosophical and interesting work, in which we are at a loss whether to admire more the extensive knowledge he possesses of the individual facts recorded in the literature of all nations, or the vast powers of combination and generalization he has displayed in building up from materials so scattered, pathological principles of such importance and extensive application. We know of no book so suggestive in its character, so ingenious in combining facts, or so well calculated to improve the reasoning powers of the professional reader.

From what we have said it will be seen that there is no dearth of books on every subject connected with the new school of pathology—but unfortunately they are all written in German. It is with no small pleasure, therefore, that we hail a translation of one of the most valuable publications formerly noticed. Dr Day has partly united the two works of Vogel together, that is, he has appended to the one, the twelve plates and their descriptions, relating to general anatomy found in the other. In this way he has produced an excellent illustrated work, which peculiarly meets the wants of the profession in this country, and which we earnestly recommend to the earliest possible perusal by our readers. Dr Day has executed his task in an admirable manner, the text throughout being so well freed from Germanisms, as to read like an original production. Indeed, the work as it stands is excellent, the plates are accurately copied, and we feel satisfied that British pathologists and the profession at large, must feel under deep obligations to Mr H. Bailliere, whose enterprising spirit of publication, guided by a rare intelligence, has thus led him to increase the number of valuable translations, for which our literature is already indebted to him.

In our July number we entered rather minutely into some of the more important subjects treated of by Vogel, when analyzing the excellent work of Lebert. There are many other points, however, alluded to in the systematic work of the former, which are not mentioned in that of the latter. The arrangement adopted by Vogel we consider somewhat faulty, as it necessitates a certain degree of repetition. Thus, in the second chapter he speaks of dropsies, and the seventh chapter he returns to them again, in order to show their connexion with congestion and inflammation. Neither can we agree with the author in the propriety of classifying his granular cells, or compound inflammatory globules under the head of spurious pus. We commonly find them in dark red hepa-

tizations of the lung, and certain softenings of the brain, where, assuredly, the notion of pus in any way will not apply. We observe that the translator has rendered the term "neubildungen," that is, new formations, by the word "epigeneses." Now, this is not the meaning of the author, nor does it apply to the structures themselves, which are not growths upon, but frequently *in*, organs and tissues. Besides, the term epigenesis, no more relates to *new*, than it does to *old* formations.

For the present, however, we are obliged to conclude, which we do with an extract from the valuable chapter on parasites, a subject very little understood, more especially that of vegetable parasites, which we regret to see ignorantly spoken of in certain elementary works on physiology and diseases of the skin.

PARASITES DERIVED FROM THE VEGETABLE KINGDOM—EPIPHYTES.

"All the parasitic plants which, up to the present time, have been observed in the human organism, belong to the lowest forms of vegetation—the algæ and the fungi. They are all very minute, so that, to the unaided eye the greater number are totally invisible, and others are only perceptible when accumulated in large masses. In order to recognize their peculiar structure, and thus to arrive at a more accurate diagnosis, the microscope is invariably necessary, and very high powers are often required. They are found either upon exposed surfaces, namely upon the skin and mucous membranes, or floating in the fluids of the body. I am acquainted with no authentic case in which they have been observed during life in the parenchyma of human organs.

"Respecting the origin of vegetable parasites, there are the same two different views which have been noticed in relation to the origin of parasites generally. Whilst, for instance, Kützing,¹ who has devoted much of his attention to the lower algæ, maintains that their origin, by repeated spontaneous generation, is possible, others limit their origin to the mode by propagation. Although a positive decision of this disputed question may at present be impossible, it nevertheless appears to me that there are overwhelming reasons in support of the view that they invariably owe their origin to propagation alone. These reasons are chiefly founded upon the researches of Schwann on fermentation, upon similar investigations of Helmholtz,² and upon others which Dr Merklein has abundantly instituted upon this subject, all of which show, that under conditions which otherwise prove favourable to the formation of fungi and algæ, these do not present themselves, when the possibility of the transference of uninjured germs is precluded. Moreover, all the parasites hitherto observed, increase in enormous ratios by means of gemmules or spores: the latter are so infinitely numerous, so minute, and maintain their germinating power so tenaciously against the most common external agents, that by means of water and currents of air they certainly become universally diffused, and can, therefore, develop themselves wherever they meet with favourable conditions. That we have hitherto, in most instances, failed to demonstrate the origin of fungi by transference of germs, can be no argument against this mode of propagation; for, even in the most careful examination, certain fungus-spores, whose diameters are sometimes less than the 1000th of a line, may, and indeed always will escape the notice even of the most practised observer. In some cases the transference of parasitic fungi, or of their spores from one sub-

¹ Phycologia generalis. Leipzig, 1843. p. 129, &c.; or his remarks in Erdmann's Journal f. prakt. Chemie. 1837. vol. xi. p. 391.

² Müller's Archiv. 1843. p. 453, &c.

ject to another becomes facilitated by distinct relations, as immediate contact, &c.; as may occur in porrigo, in some forms of impetigo, mentagra, &c. These are the cases which are especially regarded as contagious. In general, however, peculiar conditions appear requisite for the development and increase of the transferred germs—conditions which are in general only realized by pathological relations. It appears, for instance, that the surface upon which they are to develop themselves must in general, if not always, be in a certain state of chemical decomposition (putrefaction or fermentation); as, indeed, we find that externally to the human and animal organisms most fungi are developed only on putrefying substances. Experience shows us that parasitic fungi are especially liable to occur on foul ulcers, and probably only exist on the skin or mucous membrane, in the cases where these are furnished with a layer of decomposing exudation. Parasitic plants have so far a diagnostic value, that they indicate that a process of decomposition is going on, however locally circumscribed it may be. Hence it follows that they do not become developed at all spots on which the germs are deposited; their growth indicates a certain morbid disposition.

“This view is opposed by the results of experiments made with the view of showing that parasitic plants can be transferred by inoculation to apparently healthy organisms, and there give rise to morbid phenomena: thus, for instance, Hassall¹ was able to transfer, by inoculation, parasitic fungi from diseased to healthy lettuces, in which they produced the same disease (softening of the stem). These cases, however, prove but little; they merely show that in some instances the disposition to fungoid development need not be great; and they are, moreover, open to the objection that the plants which were inoculated, having, perhaps, the same *habitat*, and living under similar relations, already bore within them the morbid disposition.

“The pathological signification of parasitic plants, that is to say, their power of engendering disease, appears extremely various in different cases. Sometimes through their great bulk they may become mechanically injurious, as by obstructing canals, &c.; of this, however, no instance has yet occurred in the human subject; they may accelerate incipient decomposition of the secretions, and thus prove chemically deleterious; in some cases they may destroy or modify histological elements (for instance, hairs). Moreover, it is deserving of notice, that, by their tenacity of life, which in many cases, especially in some cutaneous diseases (impetigo and favus), defies most chemical agents, they ensure to the concomitant affection a very long duration. To animals they are sometimes more injurious than to man; in the smaller animals they may even, through their bulk, occasion death, by obstructing canals, &c.² At all events, the part which these parasitic fungi act in the diseases which accompany them, is a question which renders more extensive investigations still desirable.

“A classification of parasitic fungi might be carried out according to botanical principles. It would, however, be very difficult, since the greatest number show no distinct fructification, and the *mycelia* of most fungi in their early stages of development resemble each other in an extraordinary degree. Their elementary forms are simple cells, which enlarge by the protrusion of new cells, or by prolongation into filamentous structures. Their fructification consists of spores which are either free and agglomerated into pulverulent masses, or appear enclosed in proper fruit-beds (sporangia).”

¹ Froriep's, N. Notizen. Oct. 1843. p. 54, &c.

² Instances of parasitic plants injurious, and even fatal to animals, in consequence of their mass, are already very numerous, and fresh cases will almost daily be revealed. Amongst the more important cases in which animals have been attacked by vegetable growths, we may place those noticed in the following memoirs:—Regarding the muscardine of the silkworm, see Bassi, del mal del segno, calcinaccio, o moscardino. 2nd ed. Milano, 1837; Audouin, recherches anatomiques et physiologiques sur la maladie contagieuse qui attaque les vers à soie. Annales des sciences natur. t. 8, p. 229 and p. 257. Nouvelles expériences sur la nature de la maladie, &c.

A Manual of Materia Medica and Therapeutics, including the Preparations of the Pharmacopœias of London, Edinburgh, and Dublin; with many New Medicines. By J. FORBES ROYLE, M.D., F.R.S., late of the Medical Staff of the Bengal Army, Professor of Materia Medica and Therapeutics, King's College, London, &c., &c. 12mo, pp. 716. London, 1847.

The medical press has been particularly fertile of late in works of merit on materia medica. At the head of the list stand the works of Pereira and Christison—we mention them in the order of their date—then follow Neligan, Balard and Garrod, with a host of others of less ambitious pretensions. And now Dr Royle, professor of materia medica in King's College, adds another to the list. A question naturally arises, whether it be or be not desirable to encourage this multiplication of works on one rather definite subject? There can be no doubt that there are advantages, as well as disadvantages, in this multiplication of the literature of remedial agents. Each of the works above referred to has its peculiar merits. One is full to overflowing, omitting nothing in any way connected with the history of medicines which can interest the reader; another keeps rigidly within the proper limits of the subject, being copious only when minute details are requisite to render the matter in hand practically intelligible; a third consults the ease of the reader's memory, using all the arts of method for this purpose, and caring less, for example, to make him capable of performing a process than to help his remembrance of the outlines of the plan on which others perform it; a fourth confines itself to commenting on one pharmacopœia, and thus, with the disadvantage of acquiring a merely local character, obtains the desirable benefit of compressing the subject within a narrower compass.

A work on materia medica, however skilfully planned and carefully executed, seldom reaches all the perfection of which it is susceptible in the first editions; and one of the chief evils attending the multiplication of new works is, that it either prevents successive editions of the best books, or discourages the authors of these from bestowing the requisite pains for their gradual improvement at each new appearance. All works on materia medica are necessarily more or less compilations; but yet, looking to the works on this subject which issue annually from the press, there is room for the distinction of them into works of original authority, and into abridgments, abstracts, or repetitions. Accuracy, both in the matter and the letter, is perhaps the highest quality in a work on materia medica; and this quality is oftener found in original works than abridgments—hence, and for the reason referred to above, it would be well if the Medical Profession were to discourage the works of those who have no claim to be considered as original

authorities, at least in some considerable part of the subject; and this becomes the more necessary at a period when there are many good works by original authors—for then is the time for the harvest of the ingenious book-maker in this department, since the compilation often, owing to its borrowed plumes, aided by some factitious advantage, gets into extensive circulation, notwithstanding many errors, glaring enough to the eye of the scrutinizing critic. To these rather desultory remarks we must add one more, namely, that a perfect work on materia medica cannot be written but by one well versed in practical medicine. All that belongs to the natural and chemical relations of drugs, their preparation, and the like, can be delivered with unerring fidelity, by many who, not being conversant with diseases, are wholly incapable of speaking to their medical uses otherwise than in terms so general as to be practically worthless. In an elementary treatise for the mere use of students, it may be sufficient to indicate the general therapeutic effects of drugs, and the names of the diseases in which each has been used; but, how little benefit does the practitioner derive from such statements compared with the discriminative observations of a practical physician, on the varying circumstances of disease, under which a medicine is or is not advisable.

Though Dr Royle's work bear the name of a manual, it is not to be confounded with the mere abridgments of the day. On many points it contains new matter, and altogether it is entitled to rank in the class of original works on this subject. The book is such a one as we should expect from a physician of Dr R.'s experience in the diseases of the most opposite climates, and we have not been disappointed in finding many topics treated of, in a way peculiarly his own, by the author of the *Essay on the Antiquity of Hindoo Medicine*. It must be confessed, however, as the name would suggest, that the work is designed rather for students than for practitioners. And, as a manual for students, the numerous woodcuts which illustrate it give the work an additional value.

After a short Introduction, in which some of the operations of Pharmacy are briefly described, our author treats of the articles derived from the Inorganic Kingdom, according to a chemical arrangement; then of the Vegetable Materia Medica, according to De Candolle's botanical arrangement; next, of the Products of Fermentation, and the Animal Materia Medica; and, lastly, of the Physiological and Therapeutical Arrangement of the Materia Medica. Did our limits permit, we would willingly present our readers with specimens of the work, taken from its several divisions. We think, however, as he has admitted some substances into his work which are not yet officinal, that our readers will be better pleased if the space we can spare for extracts be devoted to some of these. Of Matico he says,—

“Matico is a name applied in South America and Mexico apparently to the leaves of several very different plants. Martius, in the *Phar. Central Blatt.*,

considered it to belong to the genus *Phlomis*. Mr Hartweg informs Dr Lindley that 'Matico is the vernacular name applied by the inhabitants of Quito to *Eupatorium glutinosum*, or the Chussalonga.' He adds, 'That it is the true Matico of the inhabitants of Quito and Riobamba, I have not the smallest doubt. I have also a small quantity of powdered leaves of some shrub possessing the same virtue as the Matico, collected in Bolivia, where it is known under the name of Moxo-Moxo. From bits of square stems which I find in the parcel, I suspect this to belong to some *Labiata*.' (Lindley, Veg. Kingd. p. 707.) But it is equally certain that what has been of late years imported here, and of which specimens were distributed by, and for some of which the author is indebted to, Dr Jeffreys of Liverpool, are the leaves, with portions of the stem and flowering-spikes, of a species of *Piper*, supposed to be *Piper angustifolium*, but which is now named *Artanthe elongata*. (v. P. J. iii. 472 and 525, and Lindl. l. c. p. 517.)

"The Matico was first brought into notice by Dr Jeffreys as a Styptic (*Lancet*, Jan. 7, 1839) in leech-bites and wounds of arteries, and has been found efficacious in many obstinate cases of bleeding, as from the nostrils, and even from the tongue. Its *under* surface, which is reticulated with veins and covered with hairs, should be applied, as it is probably on this structure that its utility chiefly depends. Its Infusion and Tincture have also been recommended internally in affections of the urinary organs, on which, by its stimulant action combined with a little astringency, it would appear to produce a salutary effect, as Cubebs are frequently known to do. Its properties, by the analysis of Mr Morson, appear to depend chiefly on its resin and volatile oil, its aqueous extract having only a slightly bitter and astringent taste. It has also been prescribed in discharges of blood from the urethra and rectum, as well as in uterine hæmorrhage, and has been used as an injection in Leucorrhœa, and as an external application to hæmorrhoidal affections, both as an ointment and as a lotion, by Mr Young and Dr O. Ferral, &c. The Infusion may be prepared with *Matico* ʒiv. increased—ʒj. to *Aqua Oj.*, and given in doses of fʒiss.; and the Tincture (*Matico* ʒiij. to *Proof Spirit Oj.*) to be given in doses of fʒss.—fʒj. two or three times a day."—Pp. 563, 564.

On the subject of Indian Hemp, we can present our readers with but a part of our author's article.

"CANNABIS SATIVA and its variety *C. indica*. The Leaves and Resin of Hemp.

"The Hemp appears to be a plant of the Persian region, where it is subjected to great cold in winter, and to considerable heat in summer. It has thus been able to travel on one hand into Europe, and on the other into India; so that the varieties produced by climate have by some been thought to be distinct species, the European being called *C. sativa*, and the Indian *C. indica*. The name *κανναβις*, by which it was known to the Greeks, seems to be derived from the Arabic *kinnub*, the *canape* of the middle ages, Dutch *kinnup* and *kinnup*, German *hanf*, whence the English *hemp*. Herodotus mentions it as Scythian. Bieberstein met with it in Tauria and the Caucasian region. It is well known in Bokhara, Persia, and abundant in the Himalayas. It seems to have been employed as an intoxicating substance in Asia and Egypt from very early times, and even in medicine in Europe in former times, as we find it noticed in Dale (*Pharmacologia*, i. 133) and Murray (*Apparat. Medicaminum*, iv. p. 603-620), where it is arranged, as in this work, next to the Humulus. It has of late years been brought into European notice by Dr O'Shaughnessy.

"The author, in calling attention to the uses of this plant, in his *Illustr. of Himalayan Botany*, stated that 'the leaves are sometimes smoked in India, and occasionally added to tobacco, but are chiefly employed for making *bhāng* and *subzee*, of which the intoxicating powers are so well known. But a peculiar substance is yielded by the plants on the hills, in the form of a glandular secretion, which is collected by the natives pressing the upper part of the young plant between the palms of their hands, and then scraping off the secretion

which adheres. This is well known in India by the name of *cherrus*, and is considered more intoxicating than any other preparation of the plant, which is so highly esteemed by many Asiatics, and serves them both for wine and opium. It has, in consequence, a variety of names applied to it in Arabic, some of which were translated to me, as "grass of faqueers," "leaf of delusion," "increaser of pleasure," "exciter of desire," "cementer of friendship," &c. Linnæus was well acquainted with its "vis narcotica, phantastica, dementens" (anodyna et repellens). It is as likely as any other to have been the *Nepenthes* of Homer.' (l. c. p. 334.)¹

"Dr O'Shaughnessy has described in detail the different preparations, as—

"1. *Churrus*, the concreted resinous exudation from the leaves, slender stems, and flowers. This is collected in various ways; that of the Himalayas is much esteemed, that of Herat and of Yarkund still more so. For a specimen of the last the author is indebted to Dr Falconer.

"2. *Ganjah*. Dr O'S. describes it to be the dried hemp plant which has flowered, and from which the resin has not been removed. The bundles are about two feet long, and contain twenty-four plants. In N. W. India the name *Ganjah* is applied to the whole growing plant.

"3. *Bang*, *Subjee*, or *Sidkee*, is formed of the larger leaves and capsules without the stalks.

"*Action. Uses.* All these preparations are capable of producing intoxication, whether the *churrus* be taken in the form of a pill, or with conserve, or the dried leaf be rubbed up in milk and water with a little sugar and spice, or smoked. As a medicine, it was tried by Dr O'S. in rheumatism, hydrophobia, cholera, and tetanus. In the last, such marked benefit and cures were produced, that the Hemp was pronounced an anti-convulsive remedy of the greatest value. Its general effects are, alleviation of pain (generally), remarkable increase of appetite, unequivocal aphrodisia, and great mental cheerfulness. Its more violent effects were, delirium of a peculiar kind, and a cataleptic state. Dr Pereira was among the first to submit it to experiment, but failed in obtaining any results, probably from changes having taken place in the drug. Dr Laurie pronounced it uncertain, and not to be trusted to as a narcotic. Mr Ley, however, found it useful in relaxing spasm, producing sleep, and during its action abatement of pain. Mr Donovan found its power great in temporarily destroying sensation, and subduing the most intense neuralgic pain. Professor Miller of Edinburgh considers its virtue to consist in a power of controlling inordinate muscular spasm. Dr Clendinning says that in his hands its exhibition has been followed by manifest effects as a soporific or hypnotic in conciliating sleep, as an anodyne in lulling irritation, as an anti-spasmodic in checking cough and cramp, and as a nervous stimulant in removing languor and anxiety. The Hemp may be used in the following preparations and doses; but Dr O'S., when in England, found that he was obliged to give as much as 10 or 12 grs. and even more; though in India he considered gr. $\frac{1}{2}$ a sufficient, and 1 $\frac{1}{2}$ gr. of the Extract a large dose."—Pp. 568-571.

Of the Bebeerine he says,—

"Tonic, Antiperiodic, Febrifuge. From the original experiments of Mr Rodie, and those made with Warburg's Fever Drops, there was little doubt of the Bebeera bark being a powerful antiperiodic. These have been confirmed by the experiments of Dr MacLagan, and of Dr Watt of George Town, Demerara, with the Sulphate of Bebeerine, and of Dr Anderson and others at Kamptee, &c., in the ague and remittent fever of India, by Drs Bennett and Simpson, in

¹ "Dr O'S. states that 'no information as to the medicinal effects of Hemp exist in the standard writers on Materia Medica to which we have access.' It is only in the later writers that it is omitted. Linnæus was acquainted with them, as the author quoted in the above briefly mentions, as being a botanical work."

periodic neuralgia. Dr Christison has stated to the author that the Sulphate of Bebeerine has come into general use in Edinburgh as a tonic and stomachic, and also as an antiperiodic, in the very same diseases, and for the very same purposes, as Sulphate of Quinine, and that it appears not so apt to occasion headache. He had employed it in a very severe case of periodic *tic douloureux*, and with complete success, exactly as if Sulphate of Quinine had been used. It is given in 2 or 3 grain pills every hour, or three or four times a day, according to the case, so that \mathfrak{ij} . or so, may be given before the accession of a paroxysm, or it may be given in gr. x. doses, morning and evening. Considerable improvement in the manufacture has been made by Mr M'Farlane of Edinburgh, who now prepares it in considerable quantities for medical use in the form of the Sulphate of Bebeerine."—P. 547.

The Cod-liver oil we find in the index; but, on turning to the page referred to we see nothing but the enumeration of its name, along with some other substances. To say nothing further of this remedy in a work professing to treat of new medicines, we must regard as a censurable omission.

We shall add some brief notices of points which we had marked in the perusal of Dr R.'s work. Some of our readers may remember that Dr J. S. Sutherland, of the Bengal Medical Establishment, described, last year, a variety of opium, termed in India "Hill Opium," to which he ascribed excellent effects, particularly in dysentery, owing, as he supposed, to the presence of an unusual proportion of morphia.¹ We find Professor Royle describes the Himalayan opium as of very fine quality, and seems to ascribe part of its excellence to the juice of the capsules being scraped off while still soft, and before it has concreted into tears, the soft mass being afterwards dried in a warm and airy room. It appears very probable, however, that the peculiar excellence of the Hill or Himalayan opium is dependent, as supposed by Dr Sutherland, on the soil and climate of the mountain valleys in which it is cultivated, as well as on the mode of its preparation.

Under the head of Gamboge, Dr R. sets down the botanical characters of two species of *Hebradendron*, namely, the *Hebradendron Cambogioides* of Graham, and the *Hebradendron pictorium* (formerly *Garcinia pictoria*), and gives a wood-cut of each, remarking, that he has been informed by Professor Christison that he has at length obtained specimens of the Coorg or Wynaad Gamboge, supposed to be the produce of the latter—"that it is a capital purgative, and makes an excellent pigment, not fugacious, as Roxburgh says." Thus it may be regarded as already settled, that not only Siam but Ceylon, and also Hindostan (of which the *Hebradendron pictorium* is a native), produce a gamboge perfect as a pigment, as well as a purgative.

Under the article Kino, the East Indian variety, which, in the London market is regarded as the true Kino, is very distinctly traced to a different species of *Pterocarpus* from the *Pterocarpus*

¹ See Northern Journal of Medicine, January 1846.

Erinaceus, which affords the African Kino, namely, the *Pterocarpus Marsupium*.

For obtaining Elaterium, he prefers the Edinburgh process, the fruit being taken before it is quite ripe, because, owing to the peculiar mode in which the seeds are discharged, when the fruit is quite ripe, the greater part of the active matter must be thrown off along with them.

On the authority of Dr Falconer, who succeeded him in the superintendentship of the Saharunpore Botanic Garden, our author refers assafoetida to a different genus from *Ferula*, namely, *Narthez*, giving a description and figures of the *Narthez assafoetida*, from which he believes the assafoetida of commerce to be derived.

Under Valerian he gives the following brief notice of Valerianic acid:—

“When the root is distilled with water, there comes over with the Oil an acid fatty matter, *Valerianic acid*. This is an oily fluid, with a disagreeable smell; Sp. Gr. 0.944, boiling at 270°. It forms soluble salts of a sweet taste with bases. This acid may also be produced by the oxidation of the Hydrated Oxide of Amyle, or Oil of Potato Spirit. As there has been a great demand for this acid of late for making Valerianate of Zinc, the Messrs Smith (of Duke Street, Edinburgh) (P. J. v. 110), have given a process for obtaining it. This consists in boiling the root with a little Carb. Soda (3j. for lbj. of root). To the strained liquid add Sul’ (f5ij. for each lb of root), and distil. When about $\frac{3}{4}$ have passed over, neutralize the distillate with Carb. Soda (3ij. for lbj. of root). Concentrate the Valerianate of Soda, decompose it with Sul’, and obtain the Valerianic’ set free, by means of a separate distillation.

“The Valerianate of Zinc in doses of gr. j.—gr. ij. has been employed of late as an antispasmodic tonic.”—Pp. 453, 454.

Under the compositæ, he states that *Berthelotia lanceolata*, var. *indica*, is an excellent substitute for senna. The leaves of this plant are termed *ra* and *rae-suna* in North-west India. They resemble the leaves of *Salvadora Indica*, to which our author, before Dr Falconer’s examination of them, had referred them. They are remarkable for growing with their edges vertical, and for having both sides covered with stomata.

Under Jalap, our author mentions that the true plant is now cultivated in the open air on the Continent, at the gardens of the Horticultural Society, and that of the Society of Apothecaries. We have to add, that it has flowered freely this year in the Edinburgh Botanic Garden. The numerous names given to this true jalap plant are still a source of perplexity. Besides the name adopted by the Edinburgh College, *Ipomæa Purga*, it is termed *Ipomæa Scheideana*, *Ipomæa Officinalis*, and *Exogonium Purga*.

With these few specimens of the mode in which Dr Royle has executed his task, we must conclude, while we strongly recommend the work to the attention of our readers. The typography, illustrations, and getting up are, as in all Mr Churchill’s publications, most beautiful.

The Transactions of the Royal Medico-Chirurgical Society of London.
Vol. 29. London, 8vo, 1836.

WE have only space to announce the appearance of this volume, and to express our opinion that the interest and value of the papers it contains fully support the reputation the Society has acquired for the scientific cultivation of medicine in all its branches. We shall analyse the most important communications in our periscope.

Part Third.

PERISCOPE.

ANATOMY AND PHYSIOLOGY.

MR TOYNBEE ON THE INTIMATE STRUCTURE OF THE HUMAN KIDNEY.

The Parenchyma.—Mr Toynbee correctly observes that the parenchyma of the kidney, composed of cells, has been too much overlooked by anatomists. These he proposes to distinguish from the epithelial cells lining the tubes, by calling the one *inter-tubular*, and the other *intra-tubular*. He considers that the nerves supplied to the organ terminate in the parenchyma, in the same way as he has observed those in the tail of the tadpole to become directly continuous with the radiating fibres of stellated corpuscles.

The Tubuli Uriniferi.—The mode in which the tubuli are distributed in the cortical substance is rather complicated, abounding in tortuosities, plexuses, convolutions, and dilatations, the latter not unfrequently of considerable size. Occasionally a tube, after emerging from the pyramidal mass, makes an abrupt turn, pursues a retrograde course for some distance, and then resumes its original direction. Others proceed towards the surface of the organ, giving out branches by the way, which are often of co-equal capacity with themselves. The nearer they approach to the surface, the more numerous become the ramifications of the tubes, which are not merely continuous with each other, but with those arising from the adjacent tubuli, with which they interweave, and form plexuses. In addition to the plexuses, the tubuli in the cortex exhibit convoluted masses, and at intervals distinct dilatations and loops. A tube, for instance, will divide as it emerges from the pyramidal mass, and with one of its divisions form a loop with a similar branch from a neighbouring tube. Another tube will separate into two branches, which, after running for a short distance, re-unite. From the circle thus formed, in other cases, a tube will be given off, from which, at a short distance, another will spring, and form a similar loop.

The surface of the organ presents a more regular arrangement of the tubuli than is perceptible in the interior. There is a general disposition to form masses or bundles, so that, in a well injected kidney, a lobular external appearance is presented, not unlike what is visible to the naked eye even in the uninjected specimen. Loops, convolutions, and dilatations, freely intercommunicating, characterise the tubuli of the surface.

As regards the mode in which the tubuli terminate, the account of Mr Toynbee differs from that of Mr Bowman. One mode in which they terminate

is by communicating with each other; their true relation with the corpora Malpighiana he describes as follows:—1st, The capsule of the corpus Malpighianum, instead of being, as supposed, an expansion of the tubuli, is a distinct globular investment, enveloping both the tubuli and the tuft of vessels. 2d, This globular investment is neither continuous with the tubuli nor with the blood-vessels, but is expanded over them. 3d, Into one part of the capsule the artery enters, while the other receives the tubule. 4th, The artery divides and subdivides, so as to form a globular mass of capillaries in the interior of the capsule from which the efferent vessel emerges. 5th, The tubuli, after penetrating the capsule, becomes tortuous, and twists into a coil, and after being in contact with the ramifications of the corpus, it emerges from the capsule.

The Arteries of the Kidney.—The principal mode of termination of the renal arteries is in the corpora Malpighiana, although some of the branches may form a capillary net-work without entering the corpus. The corpora Malpighiana are composed of two distinct elements, a plexus of blood-vessels, and a membranous capsule, which completely surrounds and envelopes it.

The membranous capsule is spherical, and gives the corpus Malpighianum its globular form. It is thin and transparent, and the microscope cannot detect in it either fibres or cells. To its internal surface numerous fine granules are attached, and from one part of its circumference there frequently extends a funnel-shaped prolongation, which is in fact the point from whence the uriniferous tubule emerges. By lacerating this capsule, it can readily be separated from its contained vessels, which are attached to its surface only at one point, being elsewhere surrounded by a small quantity of fluid. The external surface of the capsule itself is also but slightly attached to the parenchyma of the organ, from which it may be detached with the greatest ease.

The vessels within the capsule present dilatations towards their circumference. The small artery of the Malpighian corpus has various modes of distribution. In some instances, immediately on entering the capsule, it divides into two or three branches, these again subdivide and form the convoluted plexus, which plexus having been again collected into a single trunk, issues from the capsule close to the point at which the artery entered it, and then divides once more to form the capillaries of the organ. In some instances the rete seems formed by a single branch of a single vessel in which the artery terminates. Though, as a general rule, it is otherwise, the author has been enabled to obtain a distinct view of the capillaries, arising directly from the convolutions of the corpus. The meshes of the capillaries are elongated in a direction from the centre to the surface of the organ. They occur between the rows of Malpighian bodies. The arteries in the tubular region of the kidney follow a straight course, and are arranged in bundles of the shape of elongated cones, whose bases are continuous with the cortical portion, and their apices directed towards the mamillary process.

The Veins of the Kidney.—If a section of the surface of the kidney, with the veins and capillaries well distended, be microscopically examined, the veins will appear so disposed as to form the boundaries of various interspaces, whose configuration is mostly either pentangular or hexagonal. These spaces impart the lobulated appearance to the surface of the organ, and within them the capillaries ramify, forming a very intricate plexus. The varying extent to which these blood-vessels may be distended, produces as marked a difference in the appearance of the surface of the kidney, as arises in the liver from an analogous cause. Where two or more congested veins meet at a V angle, the stellated appearance so commonly seen is produced. The capillaries surrounding the base of each pyramid unite into straight vessels, and these again are collected into bundles between the columns of tubuli; their direction being towards the mamillary process. At the apices of the cones they form a considerable plexus, the ramifications of which are often larger than the direct vessels which enter them. Thus, on the external and internal surface of the

organ, they constitute receptacles for venous blood of no inconsiderable capacity, in the same way as the Malpighian corpora constitute receptacles for arterial blood.—*London Medico-Chirurgical Transactions*, vol. 29, 1846.

M. DUMAS ON THE CHEMICAL AND PHYSIOLOGICAL BALANCE OF ORGANIC NATURE.

Let us inquire, from physics, what are the forces of life? Doubtless, light, heat, and electricity play their part; the Promethean torch is not a mere plaything of the infancy of the world, and under that imagery are concealed many philosophical truths. Although it is now-a-days certain that magnetism and electricity constitute one and the same fluid; although it is highly probable that heat, light, and electricity are connected by the closest ties;—still, in this sanctuary of observation and experiment, we must wait, before we can admit the unity of the forces of nature, until an Oersted, an Arago, or a Faraday shall with electricity have produced nervous power, and with nervous power have generated electricity.

To speak to you of the nature of the soul, I should require the austere eloquence of a Bouillaud, or to depict its passions, the analytical talents of a Gerdy. Mine is not so lofty a task; I only wish to draw your eyes towards a neglected corner of the vast science of medicine. In the southern seas, islands gradually rise from the bosom of the ocean; at first limited, they gradually increase in size; they are formed by polypi and coral rocks, and soon give birth to an active vegetation; arable ground accumulates in their centre, animals appear, and man lays the foundation of a new empire. What is the cause of this active development of the polypus from within outwards? Do not seek for it in the laws of the organism, or in the instincts, of nature. The polypus requires calcareous matter to build his dwelling, and separates the calcareous salt from sea water, particularly in the centre of the growth; hence the eccentric development of the island.

The sublime simplicity of the means employed by nature to attain her ends is full of grandeur: rain-water loaded with the carbonic acid of air falls upon our calcareous hills; runs into our rivers, and is by them carried to the ocean; in the sea, regular currents convey it away; it is seized by microscopic animals, and an imperceptible stone is added to the edifice of those new empires in preparation for the future destinies of humanity.

Phosphate of lime is the principal element of the skeleton in all superior animals; analysis discovers it also in inferior beings, and even in plants. Phosphorus is present in cerebral and nervous matters; it is found in milk and in analogous fluids. But phosphorus and phosphate of lime are so rare in nature that an illustrious chemist, struck by the difficulty with which it is furnished to plants by the soil, remarked that Rome declined from the day that Sicily, having exhausted its phosphate of lime, could no longer yield the corn required by its immense population. The phosphate of lime must, therefore, return to the soil. Behold what simple and ingenious means are employed by nature to accomplish this purpose: taken from the soil by the plants, the phosphates pass into the body of herbivorous, and thence into the system of carnivorous animals, where they are concentrated. The animal dies; a fly lays her eggs in the dead body; thousands of worms arise; fed on the remains, they soon disperse in every direction the phosphates, when they have undergone their metamorphosis, and acquired wings in their turn. This office of dispensing the phosphatic salts is not only accomplished by flies, but by the jackal, the dog, the hyena, &c. This is not enough: abandoned on the soil, bones become gradually disaggregated, and disappear. How is this accomplished? From my experiments I am inclined to believe it is by the agency of water loaded with carbonic acid that the phosphates are dissolved, and that the last vestiges of animal life are removed. It is, you know it well, carbonic acid which constitutes the chief nutriment of vegetable matter; it is truly an admirable mechanism, at the same time that carbonic acid is destroyed in the leaf, the

phosphate of lime becomes again insoluble, and penetrates into the intimate structure of the plant. What is its function? To give to azotised matter resistance to the dissolving action of water; to give stability to the textures, as it does to our bones, and in the same way to protect all the vegetable tissues.

Perhaps we should conceive that when carbonic acid, decomposed in the leaf, liberates phosphate of lime, this salt coagulating vegetable albumen, produces the first cellular rudiments, which are continually in progress of formation.

Reversing the picture: follow the particle of air penetrating into the pulmonary cells, watch it dissolving in the blood, and combining with its carbon to reproduce that carbonic acid, the decomposition of which we have just alluded to. Venous blood will therefore contain dissolved carbonic acid, itself a solvent of phosphate of lime. Venous blood will therefore have a tendency to soften the bones, to swell and dissolve our tissues and their component cells. Under its influence animal matter will become oxidated, for the purpose of keeping up the necessary degree of heat, and the dissolved phosphate of lime will be carried away with the urinary secretions.

Thus a drop of water loaded with carbonic acid, dissolving phosphate of lime, and struck by the rays of the sun, represents the first step of life; or a drop of venous blood saturated with carbonic acid, carrying away phosphate of lime from our tissues, represents the beginning of death.

In the plant the formation of a cell; in the animal, the dissolution of a cell; in the former, carbonic acid decomposed; in the latter, reproduced; in one, phosphate of lime rendered insoluble; in the other, the same salt in a soluble state: such are the feeble efforts which cause land and sea to swarm with life, with so many beautiful creations, to whom feeling and thought have been imparted; an unceasing proof of the omnipotence of nature.

Shall I show you, in its turn, how sulphur passes from one region to the other—from the sea to the atmosphere, and thence to the soil, to plants, animals, —and again returning by the rivers to the bosom of the sea? How simple the mechanism of all these mutations; but how efficient and certain! The sea contains sulphates and feeds mollusca, the secretions of which absorb the oxygen of the sulphates, and change them into sulphurets, from which hydro-sulphuric acid is constantly disengaged. Wafted away by the wind, sulphureted hydrogen soon meets with vegetable remains, in the humid pores of which it is again converted into sulphuric acid and sulphates.

The sulphureted hydrogen liberated from putrescent animal matter, from the sewers of our towns, &c., is the most indispensable term of one of those great equations by which the balance of nature is eternally poised. Two millions of kilogrammes of sulphur are indispensable to the wants of the human population of France, and ten millions would barely represent the mass contained in the organized beings who live on that corner of the globe.

The sulphates of the soil, passing into the plants which yield it to animals, would speedily be exhausted, were it not provided that the seas shall form an immense reservoir, from which sulphur is constantly returned to the earth.

Shall I call your attention to the singular contrast, which Nature shows us of the two mineral alkalies—one, *potass*, chiefly concentrated in plants; the other, *soda*, in animals? Our excretions reject potass, and return it to the earth, but as it is soluble, the natural course of rivers carries it constantly away towards the sea; hence the numberless artifices by which the agriculturist endeavours to restore it to the exhausted soil in ashes; in manure it is potass which forms the fecundating agent. The wine-grower of Montpellier manures the soil with seaweed, and restores to the ground the potass which the vine takes from it in large quantities, in the shape of cream of tartar. Is it not for the same reason that the fields on the seashore are so proverbially fruitful? and, may I not add, that it would be desirable to ascertain, by extensive experiments, whether the mother-water of salt pits, so rich in salts of potass, might not form the basis of an excellent manure? I should like, for my part, to see this idea confirmed,

and to see the waters of the ocean, where all the residues of life are confounded, separated into two parts, and obey the will of man ; giving him by its crystallizable salts, soda necessary to his nutrition, and to that of the animals he associates to his destiny, and leaving in its uncrystallizable compounds, potass, indispensable to the existence of the plants cultivated by him. We have said enough to prove, that if in the eyes of abstract chemistry organic matter alone is important, in our eyes, seeking as we do to penetrate the mechanism of life and to detect its laws, every substance contained in organised matter is equally interesting.—*Medical Times*, Nov. 28, 1846.

SURGERY.

SPONTANEOUS DISLOCATION OF THE HIP JOINT.—REDUCTION.

A young girl, aged ten or twelve years, was admitted into the Hôpital de la Charité, and placed under the treatment of M. Gerdy, on account of morbus coxarius of the left hip, which had produced complete luxation of the head of the femur upwards and outwards. There was a good deal of swelling of the parts, but the cotyloid cavity was felt empty. The general health had not suffered severely. By rest and antiphlogistic treatment the state of the patient was much improved, and pain on motion or pressure became much diminished. The head of the bone could be felt distinctly rolling on the dorsum ilii. M. Gerdy determined to attempt the reduction of the dislocation, and has adopted the following proceeding with success. By means of a loop attached by a bandage to the leg below the knee, a weight was suspended, which, hanging over the foot of the bed, produced continued traction on the limb—counter-extension being made by a perineal band fastened to the head of the bed. The weight was at first light, and afterwards gradually increased, according to the power which the patient had of bearing it. A chair was placed at the foot of the bed, on which the weight was occasionally placed, to relieve the patient. In a few days, it is stated, the head of the bone had descended to the level of the acetabulum, and with very slight assistance, from rotation of the thigh, it regained its normal position. The reduction being now completed, the limb was fixed in this position. The reporter of the case does not mention, whether the sufferings of the patient during this process were great ; but it is stated, that after the reduction had been effected, very little pain remained, and that there was every prospect of a perfect recovery.—*Annales de Thérapeutique*, September.

VARICOCELE TREATED BY SUBCUTANEOUS LIGATURE.—FATAL FROM PHLEBITIS.

This case is reported as having occurred lately in one of the Parisian hospitals, and is by no means the first case in which a fatal result has followed this treatment of varicocele. The ultimate result of these cases treated by ligature, from all we have seen, is by no means satisfactory, temporary relief being at best obtained by the obliteration of the veins. The crowded state of the hospitals of Paris, may, no doubt, account for the cases being occasionally followed by fatal phlebitis, but even under the most favourable circumstances we cannot think the operation is altogether free from danger.

ON THE APPLICATION OF ICE IN THE TREATMENT OF INJURIES.

The application of ice to a great proportion of severe wounds, is the established practice of several of the most respected French surgeons.

In the Hôpital St Louis, burns are treated in this way, and its application in extensive burns appears to us to be that, in which its employment is most strongly opposed to our treatment of the same injuries.

"However extensive the surface or the depth of a burn, it is immediately covered with bladders half full of pounded ice, which are fixed by different contrivances, according to the injured part, and this treatment is continued till the separation of the eschars. If the burn is very extensive, the patient is placed in a sheet, and, held by two men, is plunged into a cold bath."—*Annales de Thérapeutique*, May 1846. It is said that the patient experiences immense relief from this treatment, and that he is comparatively free from pain as long as the body can bear the extreme cold. The bath is repeated frequently. It is believed by the advocates of this treatment that the extent of sloughing of the surface is thus greatly diminished: in other words, that the extent of destruction of the injured parts does not depend on the severity of the original burn, but on the intensity of the reaction, which occurs afterwards, and the beneficial operation of the cold is attributed to its preventing, or in a great measure, subduing this reaction.

However rational the theory, we believe that in practice, this treatment of very extensive burns will invariably be found inapplicable. The surface of the body in these cases is in the first place cold, and the patient collapsed and pulseless, and we do not think the most strenuous advocate of the ice and cold water system would immerse a patient in this state in a cold bath. On the contrary, stimulants must be administered, and the small quantity of caloric remaining in the body is to be preserved by the external application of cotton wadding and other non-conducting substances. It must be remembered, too, that the shock from an extensive burn is not recovered from so rapidly as that occasioned by most other injuries; and frequently soon after the full establishment of reaction, the separation of the sloughs has commenced, the extent of which we believe to depend entirely on the severity of the original burn and not on the treatment employed. The application of ice in smaller burns, we should think much more worthy of trial; indeed, we are aware that great relief is sometimes obtained from its use, and as relief from pain in such cases is one of the best indices of treatment, the feelings of the patient may very properly guide us in its employment.

In the Val de Grace, M. Baudens uses ice extensively in cases of wounds, contusions, and compound fractures, and apparently with much success; but this surgeon, not content with the degree of cold produced by the ice, reduces the temperature to a much lower degree (15° below zero C.) by mixing it with common salt. It is allowed, however, that this extreme degree of cold frequently produces considerable pain to the patient, and a feeling of tightness and congestion of the part; and we should naturally expect such an extreme degree of temperature to prove rather a source of irritation to the part, than to act in the beneficial way in which it is represented. By using cold water, and renewing its application very frequently, we probably obtain as low a temperature as it is advisable to apply on most occasions.

We feel assured that the indiscriminate and continued application of ice to wounds and injuries is frequently productive of mischief. We have witnessed fatal erysipelas on several occasions supervene during its application; and in a large hospital in the north of Germany, where this treatment was indiscriminately applied in every case of wound, contusion, and fracture, simple or compound,—fatal cases of phlebitis and erysipelas occurred with greater frequency than we have ever seen elsewhere.

FOREIGN BODY IN THE SUBLINGUAL REGION.

A servant, of 36 years of age, was occasionally subject from his infancy to a swelling under the angle of the lower jaw, which, while it lasted, was painful on pressure, and produced much uneasiness during mastication on that side of the throat. The swelling was thought to be of the lymphatic glands, and generally diminished under the use of emollient applications. Along with

these symptoms, the patient generally had uneasy sensations in the temple and the whole of the cheek of the right side. On examination, M. Stanski, under whose care the patient was, could find nothing externally to account for these symptoms; but, on inspecting the interior of the mouth, he found the place of the sublingual gland occupied by a hard tumour. Inflammatory action took place in the part a few days afterwards, and M. S., thinking that the tumour was caused by the existence of a salivary calculus, made an incision into it, and with a pair of forceps removed a small, hard, whitish, irregularly rounded body. Next day, on examining the wound with a probe, a second foreign body was detected and easily removed. On examining these attentively, they were found to be two small molar teeth; and yet the patient was found to possess all his teeth entire.

M. Stanski explains the presence of these teeth by their being supplementary teeth of a second or third dentition, which are occasionally found to occur, but usually in an abortive condition, as they were in this case.—*Journal de Médecine et de Chirurgie*, November 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

DR GEORGE JOHNSON ON THE MINUTE ANATOMY AND PATHOLOGY OF BRIGHT'S DISEASE OF THE KIDNEY.

According to Dr Johnson, Bright's disease may be described as primarily and essentially an exaggeration of the fatty matter which exists naturally in small quantities in the epithelial cells of the healthy organ. It is a fatty degeneration of the kidney, precisely analogous to the fatty degeneration of the liver. In examining a section of the cortical portion of the kidney with a power of 100 diametres, sets of convoluted tubes are seen crowded with their fatty contents. A set of gorged tubes, presenting itself either on the surface of the gland, or on the surface of a section, would constitute one of the so-called "granulations of Bright." So that, by examining a section by a low power, it is ascertained that the deposit is contained within the tubes: and by breaking up the tubes and examining them with a higher power, we arrive at a knowledge of the fact, that the fatty material is contained within the epithelial cells which line the tubes. Those portions of the tubes which form the pyramids, as well as those which, according to Bowman, constitute the expanded investment of the Malpighian tufts are rarely affected.

Dr Johnson considers that the derangement of the renal circulation observed in Bright's disease, is explained by the accumulation of fat in the epithelial cells to such an extent as to produce engorgement and dilatation of the cells, and of the tubes which are lined with them; the consequence is compression of the capillary plexus surrounding the tubes, giving rise to passive congestion of the Malpighian flexus. This leads to transudation of the serum of the blood, and sometimes rupture of the delicate vessels of the plexus, and the consequent escape of the colouring matter and fibrine of the blood, which become mixed with the urine. He asserts that there is no inflammatory or congestive stage *preceding* the deposit. The congestion which often accompanies the disease, and which is a consequence of previous morbid changes, may be either active or passive. The mode in which passive congestion occurs has been just stated. Active congestion is thus accounted for:—a large number of the epithelial cells become gorged with fat, and their secreting function is in consequence impaired: those portions of the gland which are less involved in the disease are now called upon to do an increased amount of work; this may lead to active congestion, and the consequent effusion of serum and blood into the tubes. In many cases

there probably exists both active and passive congestion of the vessels; but this is the *consequence*, and not the *cause* of the deposit in the gland.

The "mottled" surface of the kidney, is owing to the greater number of the tubes in the cortical portion which are gorged with the accumulation of fat, which often causes the organ to increase in size, and assume a uniform yellowish white colour, with here and there a few vessels which have escaped obliteration. (Bright's 4th Plate, 1st Vol. of Reports.) These are generally cases which have run a comparatively rapid course. The *granular* and *atrophied* kidneys are those in which the accumulation of fat takes place less rapidly and uniformly; some convoluted tubes become gorged with fat, forming prominent granulations; and these, compressing surrounding parts, produce obliteration of the vessels and atrophy of the tubes, and thus the entire gland gradually wastes and contracts. These are the cases in which the tubes of the pyramids become filled with fat, part of which, perhaps, has been carried into them from above, while part is contained in their own epithelium, which, perhaps (as has already been suggested), assumes a more active secretory office in consequence of the wasting of the cortical portion of the gland. There are other forms of granular and atrophied kidney, which do not depend on these changes, but these are not cases of true Bright's disease.

Dr Johnson now brings forward arguments to show that the fatty degeneration of the kidney is often associated with a similar lesion in other organs, more especially of the liver, of the arteries, and valves of the heart. Out of twenty-two cases of Bright's disease of the kidney he has examined, there was marked fatty degeneration of the liver in seventeen. According to the author's observations also, it is rare that a patient dies of the disorder, without exhibiting more or less atheromatous or steatomatous disease of the arteries.

The *pathology* of these diseases must be looked for in the processes of digestion and assimilation. The processes of primary or secondary assimilation, or both, fail with regard to this fatty matter, which, not undergoing the changes requisite for its ready elimination from the system, or for its application to the nutrition of the tissues, is thrown into the circulation. An effort is made to carry it off by the liver and kidneys; the fat finds its way into the secreting cells of these glands; its escape from these parts, in a free state, is a slow and uncertain process, and, finding no material in sufficient quantity with which to pass off in a state of combination, the fat accumulates in, and obstructs the glands. In these cases a process analogous to that which gives rise to Diabetes is occasioned. In Diabetes, in consequence of imperfect digestion or mal-assimilation, sugar is eliminated in various excretions, but especially in that of the kidneys. Again, in the cases in which fatty degeneration of the liver and kidneys occurs, an effort is made to eliminate fat; the sugar being soluble, is readily carried off; the fat being insoluble, and consequently difficult of elimination, accumulates in the secreting cells of the glands. In support of these views Dr Johnson alludes to the circumstance that Bright's disease is more common in large towns than in the country, and in large towns it is much more prevalent among the intemperate, ill-fed, and ill-clad inhabitants of cellars, and other imperfectly aired and lighted apartments, than among those who enjoy more of the comforts of life. On the other hand, he is inclined to doubt the correctness of the common opinion, which often ascribes it to acute inflammations, more especially Scarlatina. In no case he has examined of albuminous urine supervening on Scarlatina did the kidney present any of the characters of Bright's disease, and he concludes that if the first ever leads to the latter, it must be through the medium of those constitutional disturbances, which would probably at the same time give rise to a similar disease of the liver. Free oil globules, and fibrinous casts of the tubes, as described by Simon, are frequently found in the urine, but the most characteristic appearance is epithelial cells containing oil globules.

The *treatment* of Bright's disease must be governed by the view, that it is constitutional and not local, and is therefore chiefly to be combated by hygienic

rules. Pure air, regular exercise, attention to the proper cleanliness and temperature of the skin, with the administration of chalybeate, and such other tonics as circumstances may seem to require; these are the means best calculated to invigorate the system, and so to restore the healthy balance of the functions. In addition, the diet of such patients will require careful regulation; and as a diabetic patient would be cautioned against the use of sugar, so, on the same principle, should the subject of these fatty degenerations be directed to abstain from a fat diet, and from an excessive use of such materials as starch and sugar, which seem difficult of digestion, and which may, perhaps, by a slight chemical change, be converted into fat. The best means of regulating the congested condition of the kidney will be the regulation of the functions of the skin and bowels. Local bleeding may sometimes be called for, and it is a measure often followed by great relief, and a manifest improvement in the secreting power of the kidney; but in the use of this measure we must exercise that degree of caution which is required of us, when we remember the pathological history of the disease with which we have to deal.—*Medico-Chirurgical Transactions of London*, Vol. 29, 1846.

In an appendix to the paper, Dr Johnson states that when it was read to the Society, neither he nor any of the members present (and this at a full meeting) were aware that any previous researches had been made on this subject. A sad account of the London pathologists truly. The fact is, that everything stated by Dr Johnson—the accumulation of fat within cells, the distension of the tubuli uriniferi, the fatty nature of the disease, its resemblance to the fatty degeneration of the liver, its conjunction with the phthisis pulmonalis, &c., &c., will all be found amply detailed, and better illustrated, in the Memoir of Professor Gluge of Brussels, on Stearosis of the Kidneys, a term sufficiently expressive.—(See *Pathologische Anatomie*, Lieferung 10). The Belgian professor has even produced the disease artificially in dogs, by feeding them on oil. His knowledge of histology, however, has prevented his falling into the error which Dr Johnson has committed, for the oily particles do not only form within the epithelial cells, but within the Malpighian bodies and cells of the parenchyma of the organ, which latter structures Dr J. does not seem to be acquainted with. They also occur loose in masses. We claim, then, for Professor Gluge the entire originality of these views, and this although Valentin, Hecht, Henle, Pfeufer, and others had observed fat deposited in the texture of the kidney in cases of Bright's disease.

We are afraid that as the use of the microscope becomes more general in this country, especially in its application to pathological histology, we shall be frequently under the necessity of snatching from our countrymen the merit of originality in their discoveries. We beg of them, then, before publishing the results of their observations, first to look over the works of Valentin, Müller, Gluge, Gruby, Henle, Vogel, Remak, Lebert, and a few others we could mention. By so doing, whatever disappointment they may feel at finding similar observations to their own already published, they will at least escape the mortification of public exposure and unfavourable comparisons.

MR TOYNBEE ON BRIGHT'S DISEASE OF THE KIDNEY.

Mr Toynbee generally agrees with Dr Johnson regarding the essential fatty nature of Bright's disease. He does not agree with him, however, in excluding congestion as a preceding phenomenon. On the contrary, he describes the peculiar features of the first stage of the disease to consist of an enlargement of the arteries, entering the corpora Malpighiana; the dilatation of the vessels of the tuft, the capillaries, and the veins; an increase in the size of the capsule of the corpus and of the tubuli, and a large addition to the quantity of the parenchyma of the organ.

In the second stage, the artery of the corpus Malpighianum, the capsule and

the tubuli become greatly dilated, as if by some internal force. The latter become greatly convoluted, pressed together, and dilated in some cases like aneurismal sacs, so that the blood-vessels are evidently compressed, and rendered incapable of admitting an injection.

In the third stage the arteries are still more compressed and contracted; the veins on the surface present the stellated aspect, owing to pressure on their trunks. The tubuli are gathered into rounded masses, which form the granules on the surface of the organ. Sometimes these are white, at others red, which is owing to their being filled in the one case with fat, in the other with blood. The parenchyma is hard and composed of elongated stellated cells, from the angles of which fine threads proceed, and communicate with each other.—*London Medico-Chirurgical Transactions*, vol. 29, 1846.

SIR HENRY MARSH ON THE INFLUENCE OF THE PREPARATIONS OF IRON IN INCREASING, AND OF THE HYDRO-SULPHURET OF AMMONIA IN DIMINISHING, THE YELLOW CORPUSCLES OF THE BLOOD.

Whether the preparations of iron produce their effects directly by augmenting the proportion of yellow corpuscles in the blood, or indirectly by invigorating and improving the digestive function; still there is no medicine, the curative properties of which are more fully established. The probability is, that it acts usefully in both ways. Nor is its salutary action restricted to chlorosis; there are many other pathological conditions of the animal economy over which it possesses the same power in improving the blood, and thus restoring tone to the nerves, and vigour to the muscles. Were all cases of chlorosis simple and unmixed—were it not liable to the various complications, then indeed the treatment were easy, and the cure certain. But this is not always the case: various co-existing affections complicate the treatment, and even forbid for a time the employment of chalybeates; besides, there are individual constitutions, so intolerant of iron, so peculiarly affected by it, that we are compelled altogether to forego the administration of this useful remedy. We occasionally, also, meet with patients who cannot endure it, except in quantities too small to effect a cure; we are, in consequence, sometimes compelled by necessity to look around for a substitute, and the most efficient one which Sir Henry has been enabled to discover is bismuth. Cinchona and its salts, and the carbonate of ammonia, are also useful. The injurious effects produced by iron are throbbing and pulsation of the vessels of the head, headache, vertigo, and sometimes epistaxis. In one case it produced all the symptoms of intoxication; in another, though given in moderate doses, it caused a delirium which did not subside until the third day. Its tendency also is to produce acceleration of the pulse, heat of skin, and febrile excitement. In a few cases a well characterised periodic fever has resulted from its excessive administration. It further increases the constipation so common in chlorosis. Hence arises the important practical rule of thoroughly evacuating the bowels, and of completely allaying intestinal irritation, as a preliminary step to the administration of iron; and of combining with it, during the whole progress of the treatment, such mild aperients as are best suited to the individual constitution, and best calculated to maintain a sufficient and regular action of the bowels.

The mode of administering iron is not unimportant. There is none superior to that of drinking the natural waters at a chalybeate spa; travelling, change of air, climate, scenery, and associations, render the remedy more effective. Sir Henry Marsh considers Langen-Schwalbach in Nassau to be the most generally efficacious, although there are many for whom the weakest of such springs is too powerful. In a disease which generally requires for its cure a prolonged course, it is no small advantage both to vary the preparation, and to be enabled to administer it in a palatable form; hence the acetated tincture, and the wine of iron, and Bewley's effervescing chalybeate are all useful. Sir Henry has

found the following formula useful in many cases: water of the citrate of ammonia, three drachms; water, six drachms; syrup, a drachm; citrate of iron and quinine, from one to three grains;—mix for a draught, to be taken twice or thrice daily. He considers that the action of iron is rendered more speedy and effective, on administering in conjunction with it Peruvian bark and its salts. Hence arises the value of the triple salt just named; hence also the efficacy of the aromatic iron mixture, which, when united in equal proportions with Griffith's mixture, constitutes a very useful compound. He often prescribes, and he thinks with excellent results, bark, iron, and ammonia conjointly in the following manner:—Decoction of Peruvian bark, ten drachms; tincture of bitter orange peel, one drachm; syrup of ginger, one drachm; bi-carbonate of ammonia, fifteen grains. The compound iron pill, the saccharine proto-carbonate, diffused in a vegetable bitter, and the following powders, he has also found beneficial, viz., bi-carbonate of soda, fifteen grains; tartaric acid, ten grains; dried sulphate of iron, from one to five grains; powdered white sugar, half a drachm.

In proportion as the amount of yellow corpuscles in the blood is increased by the use of iron, change of air, or other remedies of a tonic nature, so is the quantity of urea and uric acid in the urine augmented. If the chalybeate treatment be too long persevered in, it may lead to and establish a condition of the system directly the reverse of that for which it was originally prescribed. Many cases are recorded where iron, having been given to cure chlorosis, the individuals have become plethoric, with a tendency to hemorrhage. Hence the inquiry suggests itself, do we possess any medicine capable of diminishing the amount of yellow corpuscles, when in excess, of equal efficacy with iron (whatever be its mode of action) in augmenting their quantity when deficient? Can we, in fact, take away from the richness of the blood with the same certainty that we can add to it? Obviously by bleeding, abstinence, and evacuations, the whole mass of the blood may be attenuated and impoverished; by these means, however, the blood is not only deprived of its yellow corpuscles, but all its constituents are wasted, and the object of diminishing the proportion of corpuscles alone is not attained. In 1843 Dr Freke expressed his belief that the hydro-sulphuret of ammonia might be possessed of this power, by appropriating to itself a portion of that iron which would otherwise have contributed to the formation of the globules. His grounds for such belief were, conjointly, the known affinity between iron and sulphur, the observed effects of hydro-sulphuret of ammonia on the economy, and the supposed function of iron in the globules. M. Bonnet of Lyons has since remarked, that the hydro-sulphuret of ammonia destroys the globules completely, and deprives the blood of the faculty of assuming the bright scarlet colour of arterialisation. Dr Newton has published a case of disease of the heart, in which, the hydro-sulphuret of ammonia having been administered, the heart's action was reduced to forty-eight in the minute, with an abatement of all the urgent symptoms. In other cases the influence of this medicine upon the heart and pulse was very remarkable. Sir Henry Marsh was led to adopt this practice by the accounts given of it by Dr Rollo, in his work on diabetes. He has also been in the habit of prescribing the hydro-sulphuret of lime in the treatment of diseases of the skin, internally, in doses of from ten to thirty drops, sufficiently diluted; and externally, in the form of vapours of lotion, and of liniment. Its effects have been very favourable, more especially in those cases in which, from appearances at least, we should be induced to expect an excess of the yellow corpuscles. Might not its action be similar to that of the hydro-sulphuret of ammonia? and might not this investigation, if fully carried out, throw a clearer light upon the manner in which the sulphureous waters of Lucan, Harrowgate, Aix-la-Chapelle, &c., and the various preparations of sulphur, influence the animal economy?—*The Dublin Quarterly Journal of Medical Science*, November 1846.

CLINICAL NOTES TAKEN IN THE PARISIAN HOSPITALS.

ARTICULAR DROPSY.—Large doses of tartrate of antimony is a valuable remedy in cases of articular dropsy. Besides the remarkable cases of cure recorded by M. Gimelle, we have just observed another in the service of M. Velpeau at La Charité. It was that of a young female cook, in whom the disease had existed in the right knee for six months, with pain, without fever. M. Velpeau ordered the medicine in a drink, in the progressive dose of 4, 6, and 8 grains in the twenty-four hours. The disease disappeared in fifteen days. The patient only vomited during the first two days.

COD-LIVER OIL.—The oil now administered in the hospitals of Paris does not contain one atom of iodine. M. Rayer has just caused an analysis to be made, without a trace of it having been found. It is probable, therefore, that the therapeutic effects of this substance depend on its being purely and simply a fatty body.

NITRATE OF SILVER INJECTIONS IN CHRONIC DIARRHŒA.—The chronic diarrhœa which accompanies phthisis or enteritis, or which follows typhoid fever, yields for the most part to the use of injections composed of 10 grains of nitrate of silver, dissolved in a quart of water. If a metallic syringe be used, care must be taken not to allow its remaining in the instrument any time, or a chemical decomposition will take place. The injection may be retained or returned without any inconvenience, the antiphlogistic effect of the remedy is produced in either case. This practice has never given rise to accident. (*Guérard.*)

FRICTIONS OF CROTON OIL IN PHTHISIS PULMONALIS.—In cases of pulmonary phthisis, the patients are much benefited by abundant frictions on the chest with croton oil. Twenty-four drops may be prescribed for each friction without danger. The patient should drop it gradually on the chest, and employ friction with the palm of his hand. Pustules do not form on the hand, this region having no follicles, and the epidermis being very thick. This practice considerably relieves the dyspnœa, the nocturnal restlessness and fever; but it has the inconvenience of being expensive, especially in pauper practice. (*Raver.*)

SULPHATE OF IRON IN CHLOROSIS.—The sulphate of iron being a more soluble preparation, is more useful than the subcarbonate. It may be given in the following form,—Sulphate of iron, 18 grains; distilled water, 6 ounces. A table-spoonful to be taken morning and night. Each dose contains a grain and half of the salt. (*Briquet.*)

PARALYSIS OF SENSATION.—This form of paralysis is less dangerous than that of motion, inasmuch as it is cured with less difficulty. In fact, it is almost always curable, and generally follows hysterical affections. (*Cruveilhier.*)

TYPHOID DEAFNESS.—It is rare that the deafness which succeeds or accompanies typhoid fever is not cured in the end by the efforts of nature alone. Hence it does not demand a special treatment, unless accompanied by otorrhœa. (*Rostan.*)

MERCURIAL OINTMENT AND BLEEDING IN VARIOLA.—In variola it is impossible to recommend too much the mask of mercurial ointment, rendered solid by means of starch powder, and applied once or twice a day. A thick layer of this substance should be spread with the fingers on the forehead, cheeks, eyelids, ears, &c. Under such circumstances the pustules abort in these places; the eyes are perfectly preserved by it; the face, nose, and lips do not undergo

that horrible swelling so common in confluent small-pox, and the patients feel refreshed by each application of the ointment. It is truly a precious remedy, not only as a means of preventing cicatrices, but as a safeguard to the eyes, while it diminishes the smarting pains so frequently present. (*Briquet.*)

We have frequently seen these results in the service of M. Briquet. There is, however, another point to which we are desirous of directing attention;—we allude to the importance of repeated blood-letting in the variola of adults. We have lately seen two robust young men fall victims to small-pox at La Charité, after a week's illness. Because bleeding in children has not been followed by good results, medical men are afraid to employ it in the adult. But in the hospitals of Italy we have seen bleeding generally practised in the variola of *adults*, especially at its commencement, not once, but four, five, and six times, always with benefit. It is not blood-letting, but the disease which kills, in cases which go badly. Bleeding can only facilitate the march of the eruption. Some have feared purulent absorption, but this is a theory. In one of the two patients of whom we have spoken, several vaccine inoculations on the fore-arm were made at an early period, without any effect.—*Annales de Thérapeutique.*

MIDWIFERY AND DISEASES PECULIAR TO WOMEN.

TWO CASES OF RUPTURE OF THE UTERUS.—RECOVERY OF ONE.

M. Robiquet was called to attend, in labour, a female, *ætat.* 32, who had previously had one child, and had never suffered under any symptoms of uterine disease; the present, her second pregnancy, had gone on favourably until about two hours before M. R.'s visit, when during a strong uterine contraction she felt something suddenly give way within her. It seemed to her as if her bowels had been torn, but soon an apparent calm succeeded this painful sensation.

On M. R.'s entrance he found the patient's countenance flushed, her skin moist, pulse 90, small and thready, respiration slow but regular; she had acute pain in the abdomen, with the sensation as of a weight rolling about in the middle of the belly and crushing the intestines, the uterine contractions were few and transient. The abdomen, depressed and irregular, had lost its rounded form, and permitted the limbs of the *fœtus* to be distinctly felt, and easily laid hold of through its parietes; and the child swayed from right to left, according to the movements of the patient. On vaginal examination, the head of the *fœtus* was felt at the uterine orifice. This latter circumstance induced M. R. to wait a short time, but finding that the powers of the mother were being rapidly exhausted, he applied forceps and extracted a female child, which lived only a few minutes. Scarcely was the *fœtus* expelled, when a soft rose-coloured slightly inflamed mass projected from the vagina and hung down between the thighs of the patient; this was at once recognised as part of the small intestine and the epiploon. M. R. at once returned the intestinal mass into the vagina, and gently pushed it onward to the fundus of the uterus, in which, rather to the right side of that organ, he found an opening large enough to admit his hand to pass through easily. Having at length with some difficulty returned the whole intestinal mass through the wound, he passed his right hand through the laceration so as to cover its aperture, while with his left, externally, he used frictions over the hypogastric region, with the view of inducing uterine contraction, and for the same object fifteen grains of ergot were administered. After the lapse of two or three minutes, M. R. felt the edges of the wound to approach, and the body of the uterus to make some efforts at contraction. After a second contraction had considerably diminished the diameter of the laceration, M. R. gently drew his hand out of the wound into the cavity of the uterus, and applied it to the inner surface of the rupture, to

prevent any projection of the intestines through the opening. A second dose of ergot had been previously administered, and in a short time the uterus contracted so powerfully that he was compelled to withdraw his hand from its cavity. A dangerous attack of metro-peritonitis followed, which was successfully treated in the usual manner. Symptoms of inflammation of the uterus continuing on the second day after delivery, M. R. introduced two fingers into its cavity, and finding a small knuckle of intestine protruding, he successfully effected its reduction. From this time the patient gradually improved, and was at length restored to complete health.

Second Case.—The following recently came under the notice of M. Dubois at the *Clinique d'Accouchements*:—The patient, *ætat.* 32, arrived at the termination of her third pregnancy, without any unfavourable symptoms. On the 9th June labour set in with pains, feeble, and recurring at long intervals. On the following day the membranes ruptured, accompanied with trifling hemorrhage; the labour pains ceased, and were replaced by continued and intermitting pain. The medical attendants, being ignorant of the true cause of the cessation of uterine contractions, administered ergot, in order to restore them. At noon of the same day the os uteri was completely dilated, the foetal head resting at the brim, but no attempt was made at artificial delivery; at six in the evening she was carried to the *Clinique* in the following condition:—There was general lividity of the surface of the body; the features were contracted, and the radial pulse imperceptible. M. Dubois was called, and at first supposed that the patient laboured under cholera; but, having heard an account of the case, immediately recognised it as an example of rupture of the uterus. On applying the stethoscope the child was found to be dead; forceps might have been applied, but M. Dubois declined to interfere under the circumstances of the case, on the ground that any interference would have hastened the patient's dissolution, and would uselessly compromise the obstetrical art in the eyes of the public, who are always disposed to judge wrongly: the patient died in a few minutes after. On examining the body after death, an extensive rent was found in the right side of the uterus, reaching from the orifice of the organ to the round ligament, passing through the entire thickness of the substance of the uterus, but leaving its peritoneal tunic quite uninjured. In both of the preceding cases the rupture was spontaneous, and not the result of ill-directed mechanical interference. We must therefore admit, says the reporter of the cases, an organic predisposition to laceration of the uterus, which is probably nothing else than an inflammatory softening of its tissue. In both of the cases, too, the rupture was in the right side of the uterus, instead of in its anterior surface, as is more generally observed. We agree with the reporter, in thinking that M. Dubois' motive for non-interference, viz. "a fear of public opinion, which is always wrong," is, more especially in one of his reputation and experience, a very ridiculous, and possibly a highly dangerous, guide in practice.—*Journ. de Med. et de Chirurg.*, Juillet 1846, p. 293.

PROLAPSUS OF THE VAGINA, LACERATION OF THE UNIMPREGNATED UTERUS, AND PROTRUSION OF THE UTERUS.

In the preceding page there has been recorded a case of laceration of the gravid uterus, with protrusion of the intestines through the rent, and the following case is an example of a similar injury in the unimpregnated condition. The patient was 60 years of age, and had borne seven children; she suffered under prolapsus of the vagina, and having never applied for medical advice, nor adopted any remedial measures, the affection proceeded from bad to worse; the sense of weight and dragging in the hypogastric region, the tenesmus, and dysuria became so severe, that she, by degrees, found herself less able to maintain the erect position, and was ultimately compelled to rest her head constantly upon her knees. On the 12th October, M. le Chaptois was called to her assistance; upon entering the room he was struck by the

fetid cadaverous odour which exhaled from the bed in which the patient lay, in a state of profound prostration. An enormous mass of small and large intestines had protruded through the uterus, which was torn and dragged down by the mass; the womb was everted, and hung between the thighs like the finger of a glove; near the angle of the right Fallopian tube there was a laceration of nearly four inches in length, which had given passage to the intestinal mass. The patient had, for some hours, been speechless; the pulse was small and weak, and she was, to all appearance, moribund. M. le Chaptois, notwithstanding her desperate condition, having carefully washed and cleansed the viscera, returned them with his hand into the pelvic cavity; they were then maintained in their place by the introduction of a sponge into the vagina. During the succeeding night the patient vomited frequently, and suffered from convulsions; but, after the bowels had been freely moved, an amelioration took place, and the case proceeded to a favourable termination.—*Journ. de Med. et de Chirurg.*, Juillet 1846, p. 298.

DROPSY OF THE AMNION ALLEGED AS A CAUSE OF RETARDED PARTURITION. By M. CAMULTE.

The patient had come to the full term of her third pregnancy; and, being seized with labour pains, a midwife was sent for, who stayed with her all night, but finding the pains feeble, and recurring only at intervals, she left her. In eight days she was again called, and bled the patient without affording her any relief. Fifteen days after her first attack, Dr C. was sent for. He found the abdomen enormously distended, and the patient complaining that she was nearly suffocated; she had not felt foetal movement for the last fifteen days, and said that as she lay in bed, and changed from one side to the other, she felt a body flapping about in her inside; her breasts, instead of being firm and full as they previously were, had now become soft and flaccid. Presuming that the child was dead, and as there was excessive dyspnoea from the enormous enlargement of the abdomen, M. C. brought on labour by gradually dilating the os uteri (which was already somewhat open), rupturing the membranes, and administering ergot; an incredible quantity of water was discharged, pains soon came on, and in less than an hour a living and vigorous child was born. The case is but imperfectly recorded; but the author seems to believe that true labour pains came on at the proper time (the end of the ninth month), but that parturition was retarded for fifteen days in consequence of the over distension of the uterus, just, he says, "as the urinary bladder is unable to contract and expel its contents when too large a quantity of urine has been permitted to collect in it." There is no proof, however, that the patient was really in labour when the midwife was called to her; and women labouring under dropsy of the amnion, or whose uterus is very much enlarged from the presence of twins, frequently suffer from spurious pains for several days before parturition really commences.—*Journ. de Med. et de Chirurg.* Août 1846, p. 343.

ON THE CONSTITUTION AND FUNCTIONS OF THE CERVIX UTERI. By M. NEGRIER.

The following are the most important conclusions which M. N. draws from his investigations. The superior orifice of the cervix endeavours to contract powerfully the instant that the dilating body, whether the ovum or the foetal head, has passed out of it; the superior orifice alone may oppose an obstacle to delivery, it alone may incarcerate the placenta, whereas the inferior orifice, when it has been fully and slowly dilated, returns to its ordinary size after a considerable time, and gradually. In females who are delivered for the first time, the orifices of the cervix contract before the walls of its cavity; and in women who have been delivered more than once, the lips of the external orifice close more slowly than the cavity of the cervix; and in all women the parietes of the cervix are thrown into folds from above downward. These

perpendicular folds result from the closure of the superior orifice, and are not entirely effaced even ten days after delivery. In cervical implantation of the placenta, M. N. seems to prefer plugging far before any other mode of treatment.—*Arch. Gen. de Med.*, Juillet 1846, p. 379.

ON HYSTERICAL AFFECTIONS. By M. GENDRIN.

M. Gendrin has recently addressed to the Academy of Medicine the conclusions which he has drawn from some investigations that he has made on the symptoms and therapeutics of hysterical diseases. These conclusions are summed up in the following propositions. 1st, Hysteria is not characterized by spasmodic paroxysms reproduced at intervals, but it is a continuous disease, which always presents, as well during the intervals as during the paroxysms, symptoms which sufficiently characterize it. 2dly, In all cases of hysteria, without exception, from the commencement to the termination of the affection, there exists a degree of either general or partial insensibility. In its mildest form this anæsthesia occupies only certain portions of the skin, but in its most severe degree it may affect the tegumentary surface of the body as well as the mucous membranes, so far as they are open to our means of investigation. It is not very rare for this insensibility to exist in the organs of sense, and some patients lose all consciousness of the position of their limbs and of the acts of locomotion. 3dly, The insensibility does not exist in a ratio proportioned to the intensity, frequency, or character of the paroxysms. 4thly, Most patients in the state of anæsthesia, experience more or less, at least at the moment of the paroxysm, pain, or increase of sensibility at some point, and this circumscribed hyperæsthesia is most frequently the immediate cause of the attack, and furnishes the means to bring about its termination. 5thly, Paralysis, with flaccidity or with contraction, is a very frequent symptom during the continuance of the paroxysm as well as during the intervals. This paralysis, internal or external, of the bladder, rectum, or limbs, may last for months without the slightest danger, and has given rise to many dangerous errors in diagnosis. 6thly, It is erroneous to attribute invariably to hysteria all spasmodic attacks accompanied with the sensation of the *globus hystericus*. There are two other forms of the attack which are very frequent, and which often coincide or alternate with hysteric suffocation; these are the paroxysms of excitement or mania. 7thly, All those apparently marvellous peculiarities which may reasonably be admitted into the category of the accidents produced by animal magnetism, are spontaneously produced in hysteria. Thus, that insensibility which permits persons to suffer operations by the cautery or the knife without any sense of pain, is observed in all, even the mild, forms of hysteria. 8thly, The anomalous state of the nervous energy in hysterical patients is shown by the immediate effect of medicines. Those patients who have not increased sensibility of the digestive tube can bear enormous doses of opium, from 10 to 17 grains, without any narcotic or poisonous effect. But if they do labour under this hyperæsthesia of the digestive tube, opium, in whatever way it is administered, causes vomiting, but has no narcotic effect.

A few observations lead M. G. to think that these patients can also bear large doses of digitalis and belladonna.

9thly, Of all the therapeutic agents, there is none which appears to M. G. more appropriate than opium in large doses, commencing with five grains daily, which may be gradually increased to ten or twelve before it has any narcotic effect. As soon as it exerts its hypnotic influence, all the symptoms of hysteria diminish, and it is then necessary to lessen the dose. By this treatment, the author cured more than the half of his hysterical cases.

10thly, M. G. also found sulphuric ether of much benefit in large doses; to obtain its beneficial effects it was necessary to administer it in doses of from five drachms to an ounce daily.—*Archiv. Gen. de Med.*, Sept. 1846, p. 112.

BIRTH OF TWO CHILDREN UNITED BY THE ABDOMEN.

The patient was a woman of 38 years of age, who had previously borne four children. On the present occasion the membranes ruptured in the morning, without this event being preceded by any pains. At 10 P.M. M. Pies was called; on examination, he found the uterine orifice completely dilated, and occupied by a soft elastic body. Being unable to make out what this presenting part was, he introduced his hand into the vagina, and after great difficulty and a considerable lapse of time, he at length succeeded in getting past the presenting part, and seizing a foot; this foot he brought down to the vulva, but he was unable to get the body to follow it; he then introduced his hand again, and seized a second foot, which also he brought down to the vulva, and succeeded by it in extracting the fœtus as far as the nates; but here it again stopped, and refused to move further; M. P. then made another very careful examination, and at length discovered that there was a second fœtus, and that it was attached to the first. He then brought down both legs of this second fœtus; dragging upon the four legs, and aided by the uterine contractions, he extracted the trunk of the first child, and having disengaged the arms, he seized it by the loins and hands, and exerted upon it a traction sufficiently strong to make it descend below the other, so that the two heads might not correspond, but that the one might come to place itself upon the neck of the other. This manœuvre had all the success which he expected from it, and new traction, aided by powerful uterine efforts, soon effected the expulsion of both heads. Both children were dead, small, and emaciated, but mature. They adhered to one another by the abdomen, from sternum to pubes. The malformation consisted in deficiency of the abdominal parietes, hence all the intestines were enclosed in a common sac; the anterior abdominal muscles were entirely wanting, and the lower part of the abdomen was closed by a transparent cutaneous tissue, which was continuous with those portions of the muscles which did exist. From either liver there proceeded an umbilical cord, but these were so very short that the fœtuses might almost have been said to have been attached to the placenta. The sexes could not be distinguished. One of the children had a lumbar spina bifida. The mother recovered perfectly.—*Neue Zeitschr. für Geburtskunde*. T. xv. No. 3.

FORENSIC MEDICINE AND MEDICAL POLICE.

DOUBLE MURDER.—PLEA OF INSANITY.—CONVICTION.

THE trial of which we are about to give a brief outline, took place before the Court of Assize of Ardèche. J. J. A. was charged with the murder of his wife and his father-in-law. It appeared that the accused was of a violent and even savage character, and that he had often been guilty of acts of violence against his wife. He had recently had some serious differences with his father-in-law, but, a short time before the murder, a reconciliation had taken place, which appeared to be sincere. On the day before the commission of the crime, the accused and his wife went to the house of his father-in-law. On arriving, he embraced him, and appeared to be on the best possible terms with him. The next day, when his father-in-law was engaged with some persons on business, he accompanied his wife to the garden for a walk. She, feeling fatigued, sat down at the margin of a pond; her husband immediately seized her, and, inflicting three wounds in her breast with a knife, threw her into the water. He returned immediately to the house, and, opening the door of the room where his father-in-law was engaged, invited him to come down to the garden. After at first refusing, he resolved, on a second pressing invitation, to go; but hardly had he arrived in the court, when the accused plunged his knife twice in his

breast, and, throwing the knife on the roof of an outhouse, he hid himself in a dark vault without any suspicion arising as to the place of his retreat. Both his victims died within a few hours. The knife was found to be one which the accused had sharpened the evening before, so that, like a poniard, it might cut on both edges.

From the time of his arrest his conduct was that of a deranged person, and on the trial the plea of insanity was set up. After refusing for a long time to answer interrogatories, he at last confessed the murder, saying that he had committed the crimes under the influence of a hallucination, produced by the sight of the chain of office, worn by one of the persons engaged with his father-in-law. Before the court he appeared calm and collected, repeating the same account, saying that he had no cause of complaint against his father-in-law or wife; that he had loved his wife, and never ill used her except when he did not know what he was about—that he had suffered much—that he had never offended against the law, but that in his hallucinations he lived in continual fear of gens d'armes,—that he had sharpened the knife, not to kill his relatives, but to defend himself against gens d'armes—that it was the same fear which led him to go with his wife into the garden on seeing the chain on the man of office. Some evidence was brought forward in confirmation of his declaration, particularly that of his ordinary medical attendant, who, it appears, had previously advised his being confined—other medical men, however, believed that his conduct in prison was feigned, and declined to pronounce on the state of his mind when he committed the crimes. The jury were not satisfied with the evidence offered in behalf of the plea of insanity, and found a verdict of culpability extenuated by circumstances.—*Gazette Médicale de Paris*, 7 Novembre; from *Gazette des Tribunaux*.

We are of opinion that the plea of insanity was here strongly countenanced by the evidence, notwithstanding that a distinct paroxysm of what has been termed homicidal monomania, at the moment of the double crime, was not made out.

OBSERVATIONS ON THE MEDICAL EVIDENCE IN A RECENT TRIAL AT AYR FOR INFANTICIDE.

In the November number of this Journal, a report was printed of the trial of two women at Ayr on a charge of infanticide, with a few hasty remarks on some parts of the medical evidence. In the *London Medical Gazette* for November 20, the report is given at length as it appeared in the *Caledonian Mercury*, and some editorial observations on the evidence are added. These we have read with considerable interest. Our contemporary does not think it absolutely established that the accused female was delivered of a child at the precise period to which the evidence of the leading witness (Macdougall, the hawker) pointed, nor does he think the proof absolute of the identity between the infant found in the "bents," and that of which the accused was delivered. He repeats that there is an uncertainty as to the period which the infant exhumed in the "bents" had survived the birth. He admits that the circumstance of the mouth and nostrils having been forcibly plugged with flax "affords the strongest evidence that the child had lived and breathed, and had been wilfully destroyed," but raises a doubt as to the condition in which the umbilical cord was left immediately after birth;—"whether it was divided close to the abdomen as soon as the child came into the world, or whether the cord was left untied and undivided for a longer or shorter period previously or subsequently to the death of the infant, or whether a ligature was not at first placed on the cord, the placenta being subsequently removed by division of the funis between the ligature and the abdomen." He thinks that several circumstances might lead to the belief that the funis of this infant was tied at its birth, and not divided near the abdomen till after its death by suffocation; for example, that, "in all probability," had the cord been so cut, it would have been unnecessary for the criminal to use

the means of stuffing the mouth and nose, and of compressing the trachea for the purpose of hastening the death of the child. He goes on to say that had the infant previously suffered hemorrhage, which would result from a clean division of the unligatured funis near the abdomen, it is not very probable that any ordinary degree of pressure would have been followed by an extensive ecchymosis over the fore part of the neck, such as is described in the medical report. Here he remarks that the witnesses appear to have forgotten that marks of ecchymosis are sometimes accidentally produced on the neck by the forcible bending of the child's head forward after death, and that it is very difficult to give an opinion whether such an ecchymosis did or did not occur during life. He further says that the full state of the right ventricle of the heart, renders it probable that death was produced by asphyxia, and not by hemorrhage. Moreover, he says it would have been important to ascertain if the vascular system appeared to have been drained of blood, as would probably have been the case had the umbilical cord been cut before death. He next takes up the alleged impervious state of the ductus arteriosus, and on the belief that it really was closed, argues for the probability of a congenital defect in the heart or great vessels, considering the small size of the lungs as an additional argument in favour of this supposition. We quote the concluding part of our contemporary's remarks.

"There was a want of clear medical proof, from an inspection of the heart and lungs, that this child had been born alive; and except from moral circumstances, and from the fact that foreign substances were found stuffed in the fauces, we are at a loss to understand how the medical witnesses for the prosecution could have felt themselves justified in positively swearing that 'the child, without doubt, had been born alive.' The state of the lungs afforded no grounds for such an opinion; and the inference drawn from the condition of the ductus arteriosus, appears to us not to have been warranted by the circumstances.

"The moral evidence, admitting the identity of the child to have been made out, was certainly strong against the accused; and the verdict of 'not proven' was, therefore, just and proper. The Scotch law draws an important distinction between those who are *morally* and those who are only *legally* innocent of a heinous crime; and it would be a great improvement in our jurisprudence if this form of verdict were imported into it. In our remarks on this case, we have endeavoured, irrespective of the question of guilt or innocence, to examine the evidence in a medical point of view. The case is one of the most important, in relation to infanticide, which has for many years been tried in Great Britain. It has brought to a close issue the value of one modification of Bernt's test—(the *docimasia circulationis*), as it has been proposed to apply it in charges of child-murder; and we think it has signally failed to answer the purpose intended. It is clear that other causes may lead to the arterial duct becoming impervious, independently of the establishment of the respiratory process: and the facts proved in this case will, we doubt not, teach medical witnesses to be hereafter extremely cautious in relying upon a mere closure of the duct, irrespective of the condition of the lungs, as an absolute proof that the child has breathed."

Our contemporary's observations are well worthy of consideration, though in some respects, perhaps, they are rather too refined for the practical business of criminal courts.

Our contemporary, in our opinion, finds a great deal too much of his view of the case of the infant found in the "bents," on the supposed necessity or high probability of a quickly fatal hemorrhage, if the umbilical cord was cut close to the abdomen before any violence was used. The necessity of tying the cord at all has even been disputed by some physiologists; and though we are far from acknowledging the conclusiveness of their arguments, yet the possibility of maintaining a point of this kind on plausible grounds has an important bearing on such a case as that before us. When the cord is not cut

with a sharp instrument, but torn, hemorrhage does not take place; but even when it is cut, it cannot be affirmed that fatal hemorrhage will necessarily take place, and there is no ground for believing that this hemorrhage will become profuse until the circulation through the lungs has been fully established. On the supposition that the infant found in the "bents" was born alive, instead of the gratuitous hypothesis of the cord having been first tied, and then cut close to the abdomen, the assumption which most readily explains the circumstances of the case, in as far as the umbilical cord is concerned, is, that the cord was cut close to the abdomen at birth, and that the infant was suffocated by compression of the windpipe, and the stuffing of the nose and mouth, before there was time for any serious hemorrhage to take place. This would be a rational assumption even if the state of the lungs had been such as to indicate that their function had been fully performed for a short time; but when the unusually small weight of the lungs, that is, their imperfect development under the influence of the new course of the blood established at birth, is taken into account, then it ceases to be an assumption, and becomes the only possible view of the case which is consistent with the belief that the child was born alive. It may indeed be contended that the infant was not born alive in the legal sense; that the state of the lungs is not unequivocally an evidence that it ever breathed; that the compression of the windpipe and the stuffing of the mouth and nose were not the cause of death, but merely an evidence of the criminal intention of those concerned in the delivery, as having determined beforehand to destroy the infant as soon as it should come into the world. It must be confessed that the state of the lungs, as described in the medical report, is not satisfactory, if viewed as the sole evidence of the infant having been born alive. There is no evidence whatever that the right lung had been pervaded by air in respiration; and, as regards the left lung, we must rely much on the soundness of the judgment of the medical men who drew up the report. It was red in colour; it floated in water. These are signs of air having been breathed, on the supposition which we cannot doubt, namely, that care was taken to avoid the universally known fallacy by the lung floating from air extricated in putrefaction. The left lung did not crepitate. This is a difficulty; and suggests an inquiry whether crepitation may not fail when the textures of the lung have become impaired by incipient decomposition. In pronouncing that the infant was born alive, the medical men doubtless felt that the imperfect evidence afforded by the lung was eked out by the ecchymosis of the neck and the stuffing of the mouth and nose. Our contemporary seems to think that they were not entitled to regard these circumstances as parts of the medical evidence. It is a nice point. We incline to think, in the medical investigation of the causes of death by criminal means, that such circumstances as these cannot be dispensed with. If it belongs to the medical man to discover and state such particulars, surely he should be allowed to take them into account in forming his judgment. Dr Christison, in remarking on the evidence of the cause of death in a case of suffocation, says, "The conviction in the public mind that a well-informed medical inspector should be able to detect death by suffocation simply by inspection, and *without a knowledge of collateral circumstances*, is erroneous, and may have the pernicious tendency of throwing medical inspectors off their guard."¹ We must admit, however, that the more a medical opinion is founded on purely medical facts, the more satisfactory it is.

With regard to our contemporary's assumption of congenital malformation of the heart or great vessels to account for the apparent closure of the ductus arteriosus, we think that this could hardly be the case; and must regard the supposition as unfair to the authors of the medical report, who have described the body of the infant as having a perfect conformation, and who could hardly have failed to detect such a malformation, if it had existed, in parts to which their particular attention was directed. We doubt if their statement as to the

¹ Edinburgh Med. and Surg. Journ. vol. 31.

closure of the ductus arteriosus, in the ordinary sense of the term, be well founded; first, because it might be difficult to ascertain the exact nature of its imperviousness, owing to the state of decomposition in which the body was; and, secondly, because, when an occurrence so unlikely, according to our prevailing notions, is represented as a fact, we are justified in requiring not mere ordinary evidence, but an overwhelming amount of proof, to convince us that it is so. The task of the medical inspectors in this case was a difficult one; their report is clear and distinct on the points on which it touches; there are no signs in it of any want of careful examination, or of any haste, or undue bias in the account of the appearances. For this reason, while we demur to receiving their statement as to the closure of the ductus arteriosus, we do not think this statement so loose as to deserve no attention, and the case altogether suggests the necessity of new inquiries on the several points of the varied effects of cutting the umbilical cord and leaving it without a ligature, of the state of the lungs when breathing has been interrupted almost as soon as it has begun, and of the several states in which the ductus arteriosus may be found when death has taken place immediately after birth.

ON CLOSURE OF THE DUCTUS ARTERIOSUS. By Professor BERNT of Vienna.

We quote from a note in the *Medical Gazette* on the foregoing article, the following conclusions, come to by Professor Bernt of Vienna, with regard to the closure of the ductus arteriosus:—

“1. If the child has lived only a *few seconds*, the aortal end of the duct appears contracted, and the vessel, instead of being cylindrical throughout, acquires the form of a truncated cone.

“2. If the child has lived for *several hours* or a *whole day*, the duct becomes again cylindrical, although shortened, and contracted in diameter. Its size is about equal to a goose’s quill (?); it is, therefore, much smaller than its root; and about as large as either of the two branches of the pulmonary artery, which have, in the meantime, become increased in size.

“3. If the child has lived for *several days*, or a *whole week*, the duct contracts to a diameter of a few lines,—about equal to a crow-quill, while the two branches of the pulmonary artery are equal in size to a goose’s quill.

“4. The duct is met with perfectly closed, and quite impervious, at a much later period; *i. e.* after the lapse of a very uncertain number of weeks, or even months.

“Among the exceptional conditions, Bernt remarks that the contraction may be first observed at the cardiac instead of the aortal end. In one instance of a still-born child which was resuscitated and breathed feebly for a short time, and in which the thymus gland was absent, the duct was found of the size of a crow-quill, as in children which have lived several days. He also states, on the authority of Joseph Schallgruber, that the duct is sometimes entirely absent.—*Das verfahren bey der gerichtlich-medicinischen Ausmittlung Zweifelhafter Todesarten der Neugeborenen, von Joseph Bernt*, S. 67, *Wien*, 1826; also, *Systematisches Handbuch der gerichtlichen Arzneikunde*, S. 275, *Vierte Auflage, Wien*, 1834.”

Part Fourth.

MEDICAL NEWS.

OPENING OF THE NEW HALL OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.

It is not unlikely that many of our readers at a distance, who yet take an interest in Edinburgh, may not be aware that some two or three years ago the

College of Physicians disposed of their Hall in George Street, opposite to St Andrew's Church, with the adjacent area, to the Commercial Bank. The Bank proceeded without delay to throw down the Hall, and to erect on its site a commodious building for their business, the architectural elegance of which leaves less room to regret the disappearance of the former building, which was comparatively modern, and generally admired for the chasteness of its style. The College soon after obtained a building site in Queen Street, a little to the east of Hanover Street, and commenced erecting a new Hall, being in the meantime accommodated in a house at the west end of George Street. The New House presents but a narrow front; but, as it extends back to a considerable distance to the south, it affords a great deal more accommodation than the old. The narrowness of the site in front was a source of much embarrassment to the architect, Mr Hamilton, who has, however, surmounted the difficulty in a manner highly creditable to his taste and skill. Three colossal statues adorn the front, the work of Mr Ritchie, who in these, as well as in the group of statuary placed on the front of the new Commercial Bank, has won universal approbation. On entering the building in Queen Street, a much admired vestibule, lighted from the roof, presents itself, with a flight of steps leading to the door of the Hall, while on either side, from the first landing place, a second flight of steps ascends to the floor on which the suite of apartments forming the library is placed; above the library is the museum. The hall of meeting is in excellent taste, being lighted by a lantern roof supported by pillars, so as to bear a considerable resemblance to the hall in the old building.

It is some months since the College took possession of this new building, but it was not till the end of November that all the interior arrangements were completed; on which occasion, the evening of November 27th, the College received in their new house the members of the Royal College of Surgeons, some medical officers of the public service, and a few of their fellow-citizens, among whom were the architect and sculptor.

The company assembled in the library, and spent some time in conversation and in the inspection of curious books and other objects of interest. Among the curiosities were the substantial iron pestle and mortar used by the firm of Cullen and Hunter, surgeon-apothecaries in Hamilton, afterwards so well known as Dr William Cullen of Edinburgh, and Dr William Hunter of London. These were recently presented to the College by Professor Simpson. The company then repaired to the hall, where the president, Dr Beilby, delivered an address, giving some account of the history of the College, with an abstract of which we shall presently gratify our readers.

The address being finished, and the thanks of the meeting voted to the author, the company ascended to the museum, where upwards of a hundred gentlemen sat down to supper, the arrangements being such as to give universal satisfaction. Several appropriate toasts were drunk, and the entertainment was enlivened by songs, and particularly by the performances of an excellent glee-party composed of gentlemen belonging to both colleges.

SKETCH OF DR BEILBY'S ADDRESS.

Dr Beilby, in some introductory remarks, pointed out the fact that the foundation of the Royal Colleges of Physicians, of London first, and then of Edinburgh, was, in a considerable measure, an exception to the exclusively selfish principle which governed the confederations for the prosecution of a common object, established at a somewhat earlier period; that the artisan crafts, the commercial companies, and social clubs which originated in great numbers in the fourteenth and fifteenth centuries, had hardly any other object than the promotion of the individual interests of the members, and that even the ecclesiastical societies formed no exception to the rule. He could not affirm that the monopolizing disposition did not too much betray itself in the early history of these Colleges, but that it was at least qualified by a considerable

admixture of a sincere purpose of promoting social improvement and the general good—a principle which holds so prominent a place in the numerous philanthropic institutions of modern date. Dr B. cited from the preamble to an English act of parliament, a curious description of the state of practice prior to the institution of the London College of Physicians, and remarked, that among the distinguished names in English literature, in the latter half of the sixteenth century, no small proportion belonged to that body. He was forced to confess that, at that period, and even much later, the state of medicine in Scotland was at a very low ebb, being then much the same as it had been in England a century before. In the beginning of the seventeenth century, however, in the reign of James the First of England, a few physicians had appeared in Scotland, who having formed the design of rescuing physic from the degraded state into which it had fallen, endeavoured to obtain a charter of incorporation from that monarch, and to all appearance would have succeeded, but for the opposition of the bishops, joined to that of the incorporation of surgeons. In the reign of Charles the First, the attempt was renewed with the like ill success. During the protectorate of Cromwell, a greater promise of success appeared, and a patent was even drawn out, conferring large powers on the proposed College of Physicians. But the opposition raised to this charter by the corporation of Surgeons, the Faculty of Physicians and Surgeons of Glasgow, and other powerful parties, was sufficient to postpone it so long, that the Protector died in the mean time, and all hope of a charter was at an end. Twenty years passed away before any new attempt was made for a charter. In the mean time there appeared in Edinburgh two eminent persons, Sir Andrew Balfour and Sir Robert Sibbald, who, like other physicians of that period, had obtained their chief education abroad, and had acquired a taste for botany, and other departments of natural history, in addition to their more purely medical pursuits. These two physicians, in conjunction with some others, whom they induced to take an interest in the like pursuits, established a Botanic Garden, which quickly acquired no small reputation throughout the island, and became the foundation of the present well known Royal Gardens. Sir A. Balfour also then first introduced the dissection of the human body into Scotland; and at the houses of both these gentlemen, meetings began to be held for the discussion of scientific subjects, and out of these meetings a new attempt arose to procure a charter of incorporation for the physicians of Edinburgh. This new effort was, after much opposition, finally successful, in the year 1681. The first meeting of the College took place in January 1682, when thirteen fellows were present; and at this meeting the publication of a Pharmacopœia engaged the chief attention. At the second meeting, four physicians were appointed to attend gratuitously on the sick poor, for whom there appears to have been no provision previously made, and a short time after a fund was provided by the fellows for the supply of medicines to the destitute. The formation of a library also engaged the early attention of the College. It was some years before the College obtained a fixed place of meeting and apartments for their library, which they did by purchasing a private house, with extensive grounds, between the east end of the Cowgate and the High Street, a site on which the Cowgate chapel now stands. The College continued their exertions in behalf of the sick poor, devoting part of their funds annually to that purpose; and out of this practice finally grew the design of an infirmary, in the promotion of which the College took a very prominent part, the first infirmary being opened in 1729, and the present house in 1741. The College had also a large share in the establishment of the Edinburgh School of Medicine. In the beginning of the last century, there were no medical professors in the University of Edinburgh, and when, in 1705, a student applied to the University to receive the degree of Doctor in Medicine, the University had recourse to the College of Physicians to examine the candidate; and for twenty years it continued to be the practice for the College of Physicians to examine the candi-

dates for the degree of Doctor in the University. It appears that the College had been previously accustomed to grant licenses to foreign graduates on examination. It appears, also, that in the first half of the last century the College took an active part in all that concerned public measures for promoting the health of the town, and that their efforts to put down quackish and uneducated practitioners were then zealously seconded by the civic authorities. Dr B. then took a rapid sketch of the labours of the College in the departments of Pharmacy and Materia Medica from the publication of the first edition of the *Edinburgh Pharmacopœia* in 1699, to the publication of the last in 1839. The first edition, though it contained 900 articles of the *Materia Medica*, was justly esteemed a great improvement on former *Pharmacopœias*, as regarded selection. Dr Beilby here paid a merited compliment to Professor Christison, to whose skill and indefatigable exertions the late edition of the *Edinburgh Pharmacopœia* owes so much of its excellence.

Dr B. lastly noticed the share the College had taken in the recent discussions on the subject of medical reform. On this subject we cannot deny ourselves the pleasure of giving entire the concluding paragraphs of Dr Beilby's excellent address:—

“Time forbids me to allude to more than one other of the topics which have engaged the deliberation of the College of late years; but this is the most important of all, namely, the present condition of the profession in relation to its proper ends, and the means of its improvement.

“Credulity and imposture there have been in every age; ignorant and unprincipled pretenders have always found weak and ignorant dupes to acknowledge their pretensions. Legal interposition and penal visitation were the only means thought of formerly for the correction of these evils. These have been found, as in all such cases, insufficient for the purpose. The powers and honours of privileged bodies have been prostituted in numerous instances in the most disgraceful manner. And there appears in the present state of things to be no possibility of preventing this. Yet, notwithstanding this, I believe it is not too much to assert that there never was a period in the history of the medical profession when so large a proportion of its cultivators were thoroughly qualified for their duties, and when so many were animated by the purest and most honourable motives in the performance of them. It is *these* men that feel most sensibly, and lament most deeply, the evils inflicted upon society by the intrusion of incompetent and dishonest persons into situations wherein life, health, and happiness are intrusted to them, and the loss of one or of all these may be the effect of their ignorance and mal-practices.

“The only effectual remedy for these evils will be found in the adoption of such measures as shall secure that every one who undertakes the duties of the profession, shall not only be thoroughly acquainted with the structure and economy of the human body in its normal condition; the signs of, and changes produced by, every deviation from that condition; and the modes of preventing, correcting or removing these; but shall also be well instructed in the constitution and physiology of the mental and moral nature of man; and who can take a just and comprehensive view of the mutual relations of the outer and inner man, and their influence upon each other. It is essential also at the same time that the training shall be such as is fitted to enlarge the mind and liberalize the feelings; to prevent or extinguish that presumptuous self-confidence which is the almost invariable concomitant of ‘a little learning;’ and to produce a deep feeling of the solemn responsibility that is incurred in undertaking the active duties of our profession. Within the last forty years the subject of medical education and professional organization have been repeatedly under the consideration of the College, and have been discussed in their various bearings with an earnestness, yet calmness, befitting their importance; and I cannot but congratulate the bodies I have now the honour to address on the perfect harmony of feeling, and unity of purpose which have animated the two Colleges in regard to these objects, auguring well, as it does,

for final triumph over the difficulties which yet stand in the way of the complete accomplishment of our desires.

"A retrospect of the past history of the College, presents, as we have seen, no very agreeable view of the state and feelings of the different parts of the profession relatively to each other. This, in regard to a very remote period could not be wondered at. At the time of the foundation of the College the pure surgeon was a handicraftsman, and the apothecary little better than a herbalist; while, imperfect as was the education of the physician himself, it was much superior to that which the other classes received at that time, and continued to be so for a long time; and though himself declining to perform even the slightest operation, he was the only acknowledged authority for its performance.

"So long as the education of the different classes continued to differ both in kind and degree, this arrangement was submitted to; but when the surgeon extended the boundary of his knowledge, the state of helpless subordination was endured with less patience; and in proportion as the education of the surgeon was improved, he became more emboldened to assert his independence, and at length to trench upon what had been thought to be the exclusive province of the physician; until now the distinction, in the great majority of cases, is little more than nominal; the physician in many instances being called upon to perform certain surgical operations, especially in the remoter parts of the country; and the surgeon in every case fulfilling the duties which were formerly thought to belong only to the physician.

"The struggle for equality on the one side, and supremacy on the other, was a constant source of bitter hostility during a long course of years; which was greatly increased by the mutual jealousies fomented by the co-ordinate and incompatible powers and privileges conferred on the two medical corporations. They were thus effectually prevented from combining for common objects, and the public good.

"But it is a source of unmingled satisfaction to be able to contrast with this deplorable state the present friendly relation subsisting between the two bodies.

"Larger and juster views have brought into closer approximation those who had heretofore been thought to have separate and incompatible interests. And the time is obviously hastening on, when, under the influence of a still higher education throughout all classes of the profession, the marked distinction shall no longer be, between the physician, and the surgeon, or the accoucheur, but between what may be termed the "Realists" and the "Nominalists," *i. e.*, those who shall be *duly recognised* as really possessing the qualifications which fit them for the useful and honourable exercise of their profession; and those whose only claim consists in a presumptuous pretension and undeserved title. For my own part, I look forward, not only with ardent desire, but with sanguine anticipation, to the time, when community of aim, and identity of feeling, shall overcome all the obstacles that now stand in the way of a perfect union and formal incorporation of the high-minded and thoroughly trained of every branch of the profession, and when the undivided efforts of this mighty phalanx shall be directed with resistless force against every thing and every body that would tarnish the lustre, and impair the usefulness of our noble profession.

"I regard it as no very doubtful omen of the certain and not very remote fulfilment of these pleasing anticipations, that each of the medical corporations, when disposed to indulge in a joyous festivity on the occasion of the successful accomplishment of a long desired object, regards it as an essential element of the enjoyment, that it shall be shared by their brethren of the other College. The physicians participated largely in the gratification felt by the College of Surgeons, as they partook of their elegant hospitality, when the noble Hall in Nicolson Street, reared with so much spirit, taste, and liberality, was opened.

"The College of Physicians now gives a cordial welcome to the College of Surgeons, and to all our other honoured guests, and indulges the hope, that

this, our first, may not be our last meeting in this place, whether, as on the present occasion, for festive '*delassement*,' or for the more serious occupation of combining in counsel to advance the science of Medicine, or promoting, in any other way, the proper end of medicine, the physical improvement and welfare of mankind."

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.

At the annual election meeting of the Royal College of Physicians, held on the 3d instant, the following gentlemen were elected office-bearers for the ensuing year:—

President—Dr Robert Christison.

Vice-President—Dr Wm. Beilby.

Censors—Drs John Thatcher, and John G. M. Burt.

Treasurer—Dr Charles Ransford.

Secretary—Dr David Craigie.

Librarian—Dr Wm. Seller.

Fiscal—Dr Peter Fairbairn.

Keeper of the Museum—Dr James Stark.

Clerk—Mr Kenneth Mackenzie.

Under Librarian—Mr John Small.

Officer—Robert Moffat.

Examiners of Foreign Graduates—Dr R. Christison, Dr J. H. Davidson, Dr Thomas Traill, Dr Wm. Seller, Dr George Paterson, Dr John Moir, Dr J. H. Bennett.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXVI.

FIRST MEETING—*Wednesday, November 11, 1846*—DR GAIRDNER, P., in the Chair.

1. DR BEGGIE read a communication entitled, OBSERVATIONS ON THE MORTALITY OF THE SCOTTISH WIDOWS' FUND LIFE ASSURANCE SOCIETY, FROM 1815 TO 1845. This paper is published in the present number.

2. ANALYSIS OF THE STATISTICAL RETURNS OF THE EDINBURGH AND GLASGOW INFIRMARIES FOR 1845, BY HALLIDAY DOUGLAS, M.D. The object of this communication was to show that the greater mortality and longer residence of patients in the first institution, was owing—1st, To the admission of a larger number of cases affected with disease of a fatal character; and 2d, The longer period patients affected with fever are allowed to remain as convalescents.

3. DR THOMAS M. LEE ON THE FORM OF FEVER PREVALENT IN EDINBURGH DURING 1846. After relating several cases which had fallen under his care, the author pointed out that the chief characteristics of this fever were a certain degree of tympanitic distension in the lower part of the abdomen, in some cases so severe as to interfere with the action of the thoracic viscera; diarrhœa often accompanying the disease throughout, but frequently occurring only during the convalescence; pain excited by pressure in the right iliac region; and an exanthematous eruption of small, round, rosy patches, slightly elevated above the surface of the skin, occurring principally on the abdomen, and never appearing before the tenth day. In the fatal cases dissection exhibited enlargement of the aggregated and solitary glands of the ileum, in one case with projecting sloughs of them, and swelling of the mesenteric glands. The treatment found most beneficial was the internal use of opium, and a combination of the acetate of lead and Ipecacuan. An important point was the careful avoidance of purgative medicines.

4. DR HUGHES BENNETT exhibited DR GRUBY'S POCKET MICROSCOPE, for the use of medical men at the bed side, described in our last number.

SECOND MEETING—*Wednesday, December 2, 1846*—DR GAIRDNER, P., in the Chair.

1. DR MAKELLAR READ A CASE OF OVARIAN DROPSY.—The patient was fifty-four years of age—the mother of four children. She first felt uneasy feelings in the situation of the left ovary during the spring of 1844, and in April 1845, she placed herself under medical treatment.

At this date the tumour could merely be felt emerging from the pelvis, but by the month of July, the abdomen had assumed the development of an eight months' pregnancy. During the course of the disease paracentesis had been performed three times, at intervals of a few months, followed up by diuretics and other remedies—the tumour gradually becoming less in its dimensions, and the ovarian fluid was found to accumulate much slower and in much smaller quantity.

In September 1846, the abdomen became tense and painful, particularly in the situation of the tumour, followed by slight elevation of the central part of the umbilical region, which ultimately pointed and burst, about an inch and a half below the umbilicus, discharging a considerable quantity of pus, forming a fistulous opening. The patient became exhausted from a profuse and continued discharge of offensive purulent matter from the abdomen, accompanied by troublesome diarrhoea, and ultimately sunk 24th October.

The post mortem examination exhibited the diseased ovarian tumour very considerably reduced in size, with which the fistulous opening communicated; and the abdominal viscera indicated extensive and old standing inflammatory action.

That this case presents several points of interest, especially the gradual lessening of the volume of the tumour, and consequently of the accumulated fluid from the first tapping, holding out a prospect of a cure being effected, and the termination of the cyst in abscess, forming a fistulous opening through the parietes of the abdomen, a result very unusual with ovarian disease. Allusion was made to various opinions entertained in regard to ovarian disease, and also to the treatment usually followed. Especial reference was made to that mode of treatment adopted by Mr Isaac Brown of Paddington Charity, and others, who maintain that the fluid in an ovarian cyst can be removed by absorption; and from the result in his published cases, and also from the seeming effects produced in the case before the society, Dr M. was rather disposed to entertain the belief that medical treatment, preceded by paracentesis, does produce absorption of the fluid and substance of an ovarian tumour.

Dr Hughes Bennett remarked that this case was very interesting, as exhibiting an ovarian tumour in the shape of a spontaneous obliteration. He was present at the examination after death, and from the contracted state of the tumour and its indurated walls, combined with the history of the case, he had little doubts that so it must be considered. There were a few practical points connected with the treatment of ovarian dropsy, which might be alluded to, independent of excision, a subject which having already been fully discussed, it was unnecessary to revert to. One of these was the place where puncture should be made in performing paracentesis. If made high up, for instance under the umbilicus, the tumour, as it emptied and descended into the pelvis, falls below the level of the opening, or, at all events, the puncture in the ovarian cyst, and that in the integuments do not correspond. A fistulous opening under such circumstances is very likely to be the result, as in the present case. He thought the puncture should always be made as low down as possible, that is, immediately above the pubic bone. With regard to the effects of iodine or mercury in causing absorption of the tumour, he thought no evidence had been given in the case related, and quite disagreed with the author in thinking that any benefit resulted from their employment. The natural tendency of such tumours was, during their development, to cause the breaking down of the secondary cysts, and the formation of larger cavities, so that at length one large cyst was produced. If, under such circumstances,

inflammation occurred, and the walls could be brought in contact, there was every reason to suppose that they might unite, and thus the cyst be obliterated. He supposed there could be little doubt the cases of Mr Brown were *bona fide* cases, and these proved that cure might be effected in this way. The injections which had been made, to produce artificial inflammation in the cavity of the sac, had failed; might not one cause of this be owing to the circumstance, that all the cysts had not been broken down, that some had thus escaped inflammatory action, and that the walls of the cyst had consequently not come in contact? To carry out such a treatment successfully, it would be necessary to ascertain whether the internal cysts had disappeared, and whether ulcerated openings existed between the external cysts and peritoneum. We had no means at present of arriving at this knowledge, but he thought that when paracentesis was performed, the introduction of a sound through the puncture, before the fluid was evacuated, might enable us to ascertain these important points.

Professor Simpson agreed with Dr Bennett, in considering any purely medical treatment useless in cases of ovarian dropsy. In the case read to the Society, diminution of the sac was not owing to the drugs administered, but rather to the repeated tapplings, which prevented it, on each occasion, from being fully distended. The inflammation, thickening, and consequent contraction of the walls of the cyst, would also operate in producing the result described. As regards the place of puncture, in performing paracentesis, it had frequently been found, when made immediately above the pubes, useless, because the larger cysts in ovarian dropsy were almost all situated superiorly. The injections of the sac, which had been made often, proved fatal, by exciting too much inflammation. Mr Brown's cases showed that some individuals might survive complete suppuration of the contents of the sac, but how many had terminated fatally under his plan of treatment was unknown. Still, when pus existed in the ovarian sac, he thought it good practice to permit its gradual escape, whereby the tumour might gradually diminish in volume. The pressure recommended by Mr Brown to produce obliteration, could not always be borne, and might prove injurious. Guerin had tried to break up the internal cysts, and introduced an instrument for that purpose by means of subcutaneous incision, but the plan had failed.

Several cases of ovarian dropsy were related by Drs Fairbairn, Cowan, and Christison, all of whom agreed in the inutility of an internal treatment.

2. DR CHRISTISON READ A CASE OF ACUTE PERICARDITIS, which had arisen in his clinical ward, where the signs were well marked, where local bleeding and other remedies were tried without effect, but where the symptoms yielded as soon as the mouth was affected with mercury.

The Society then elected the following Office-bearers for the ensuing year:

President.—Dr Robert Hamilton.

Vice-Presidents—W. P. Alison, M.D.; Sir W. Newbigging; John Goodsir, Esq.

Councillors.—A. Peddie, M.D.; Alexander Cockburn, Esq.; Allen Thomson, M.D.; James Duncan, M.D.; Douglas Maclagan, M.D.; Robert Nasmyth, Esq.; James Begbie, M.D.; James Spence, Esq.

Treasurer—Robert Omond, M.D.

Secretaries—John H. Bennett, M.D.; John Taylor, M.D.

COMMITTAL OF A QUACK DOCTOR FOR MANSLAUGHTER, AT HULL.

An inquiry, which has created considerable attention at Hull, was after two adjournments, brought to a termination, in the committal of a quack doctor on a charge of poisoning a female. Three years ago, the deceased, Mrs Francis Riplingham Cox, the wife of a tobacco merchant in Hull, had what is termed a fungous tumour appear on the wrist of the left arm. She applied to several medical gentlemen, who pronounced it to be incurable, and that eventually

the arm would have to be amputated, as the only mode of saving her life. Various remedies were applied to delay the operation as long as possible, and she was undergoing a course of medicine for that purpose, when a man of the name of Cotton, who professed to cure diseases of all descriptions, was introduced to her notice. Cotton examined the tumour, and deluded the unfortunate female to place herself under his treatment. He informed her that he would not only save her arm, but would in a few weeks make a perfect cure; that he would give her no pain, and all the disadvantage she would experience would be a tickling heat in the tumour. He then took out from a packet a red powder, which he rubbed over the tumour and parts of the arm that were inflamed. This took place on the 21st of last month. Soon after the powder had been applied, one of the family surgeons came by accident to see her, and hearing of the application, he endeavoured to persuade her to wash it off. This she resolutely refused to do, and in a day or two she was seized with violent vomiting and purging; excruciating pains ensued in various parts of the body, and, notwithstanding the most skilful treatment, she gradually sank, and expired. A post mortem examination was ordered by the coroner, and the opinion given was, that her death had been occasioned by the absorption into the system of the irritating powder, applied by Cotton to the tumour, the powder, they believed, being composed entirely of arsenic, particles of which had been discovered in the post mortem examination. The jury, after a short deliberation, returned a verdict of manslaughter against Cotton.—*From the Worcester Journal.*

ROYAL SOCIETY.

At the Anniversary Meeting of the Society, held on Monday, November 30th, the Marquis of Northampton, President, in the chair, the Copley gold medal was awarded to M. Le Verrier, for the discovery of the new planet; a Royal gold medal and the Romford gold medal were awarded to Professor Faraday, for his researches on Magnetism; and the second gold medal was awarded to Professor Owen, for his paper on the Belemnite.

OPERATIONS WITHOUT PAIN.

As we go to press, we are informed that several operations, such as amputation of the thigh, the extraction of nails, and other painful proceedings, have been performed at the North London Hospital without any consciousness on the part of the patients, the insensibility being produced by means of sulphuric ether.

BOOKS RECEIVED.

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| <p>1. Handbook of Human Anatomy, General, Special, and Topographical. Translated from the original German of Dr Alfred Von Behr, and adapted to the use of the English student. By John Birkett, F.R.C.S., &c. Small 8vo. London, 1846.</p> <p>2. The Climate of Torquay. By Edward Vivian, Esq. 8vo. London, 1846.</p> <p>3. Practical Remarks on Near Sight, Aged Sight, and Impaired Vision; with Observations upon the Use of Glasses, and on Artificial Light. By William</p> | <p>Whyte Cooper, F.R.C.S., &c. 8vo. London, 1846.</p> <p>4. Chelius' Surgery. By South. Part XIV.</p> <p>5. Recherches sur la Structure Intime du Poumon de l'Homme et des Principaux Mammiferes. Par M. Rossignol, M.D., &c. (Extrait des Mémoires de l'Académie Royale de Médecine de Belgique.) 4to. 1846.</p> <p>6. Hassall's Microscopic Anatomy. Part V.</p> |
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ERRATUM IN DECEMBER NUMBER.

In description of Wood Cuts, p. 407, for "valves" read "walls."

THE
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No. LXXIV.

FEBRUARY 1847.

No. 8. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Treatment of Popliteal Aneurism.* By JAMES SYME, Esq., Professor of Clinical Surgery.

WALTER BROWN, aged 42, a cooper in Leith, was admitted into the hospital on the 22d of September 1846, on account of a Popliteal Aneurism, which occupied the hollow of the right ham completely, but was distinctly circumscribed. It had been first noticed about two months before, and being then of a considerable size, may have existed for a longer period.

He could not explain how the disease originated, farther than by stating, that in his employment vigorous exertion of the limbs was frequently required.

The artery was tied on the 2d of October, with hardly any complaint on the part of the patient, and the loss of not more than a teaspoonful of blood. No painful sensation or any other unpleasant symptom followed, and the patient lay perfectly easy and tranquil, until the ligature separated on the 36th day; the aneurismal tumour having by this time almost entirely disappeared. The patient was then allowed to resume the use of his limb, and left the hospital on the 9th of November.

In the case now related, I tied the femoral artery for the *sixteenth* time, without experiencing any bad effects from the operation. Much blame has been imputed to me, both publicly and privately, for adhering to this mode of treatment, in disregard of the pressure system, which has lately been revived, and I am told that whatever

may have been my own good fortune in escaping unfavourable results, it is not justifiable for me, as a teacher of clinical surgery, to pursue a practice which has proved in general very dangerous, while there is another that may be adopted with perfect safety. To remonstrances on such grounds, respectful attention is due; and I have therefore deemed it my duty to make a careful inquiry into the present state of the question, illustrated as it has been, by the accumulated facts of several years.

With regard to the ligature, it appears that this operation admits of being performed so as to be nearly, if not entirely, free from danger. I have undertaken it in every case that presented itself, although the circumstances were often very unpromising, and even when erysipelas as well as hospital sore infested the clinical wards of the Royal Infirmary. Mr Busk, surgeon of the Dreadnought Hospital Ship, also, as will be seen from the subjoined letter, has tied the artery nine times without any bad effect; so that the operation has thus been performed in twenty-five cases with no unpleasant consequence. This success cannot be ascribed to mere good fortune, and certainly has not depended upon any peculiarity in the process, or its performance, which may not be generally adopted.

There is now, I believe, no difference of opinion as to the proper principles of the operation. They are, *1st*, To dissect with the knife and forceps, instead of tearing or scratching with a blunt instrument, to expose the artery. *2d*, To denude no more of the vessel than what is requisite for passing the needle. *3d*, To use for ligature the smallest silk thread possessing sufficient strength, and tying it as tightly as possible. *4th*, To treat the wound so as to favour union by the first intention. As to the performance of the operation, I believe that there is no arterial trunk in the body which requires for its ligature so little anatomical skill, or manual dexterity, as the femoral artery. The angle formed by the sartorius and adductor longus affords a sure guide to the vessel; and in the event of any error as to the position of the external incision, the fibres of these muscles by their different directions, at once show the operator on which side he has exceeded. But while the mere detection of the artery is abundantly easy, it must be admitted that the subsequent part of the operation is beset with extreme danger from any want of caution or nicety, since, if the vessel be roughly detached from its connexions, hemorrhage will probably result; and if the vein be wounded, the patient will almost certainly perish from inflammation of the vessel, or mortification of the limb. Care is always required, and must be employed in a degree proportioned to the intimacy with which the artery is connected to its neighbouring parts. I have completed the operation in less than a minute, and on other occasions have found nearly half an hour requisite for the purpose. If all operators had paid as little regard to the time occupied, I believe that the unfavourable results on record would not have been so numerous as they are. The

operation, therefore, I believe, being performed upon proper principles, and with sufficient care, may be regarded as perfectly safe.

If this position be well founded, the grand argument in favour of compressing, instead of tying the artery, has no room to stand, since the danger alleged to attend ligature of the vessel is what gives importance to a mode of treatment claiming to be altogether free from risk. But I some years ago expressed the fear that compression, when tried in a variety of cases, would not be found quite so safe as its advocates anticipated. "Ugly consequences also occasionally occur in the shape of ulcerations and sloughs, or swelling of the limb; and there can be little doubt that if the method in question were generally adopted, so as to bring under its influence the variety of constitutions which are prone to resent such treatment, there would not be wanting even fatal results to strengthen the objections that might be urged against its adoption."¹ It may now be inquired how far this anticipation has been realized.

The following case, reported by Mr Bellingham, affords an example of the bad effects that may proceed directly from compression, and it is hardly necessary to remark that the "acupuncture" employed in its progress nowise affected the result:—

"Patient, a butcher, aged 38, unhealthy, labouring under anasarca, anæmia, and enlargement of the heart, with signs of valvular disease, admitted into St Vincent's Hospital, under Mr Bellingham, February 10th, 1846, with popliteal aneurism upon the left side. Patient is accustomed to carry heavy loads, but never received any injury; tumour noticed about eight months previously, soon after which he entered another hospital; compression was used, but he left it about the middle of last December. The aneurism is about the size of a hen's egg; it diminishes, but does not disappear on compressing the artery in the groin; the limb is œdematous.

"Compression commenced soon after the patient's admission; pressure made by a weight in the groin, and by a clamp upon the artery at the junction of the middle with the lower third of the thigh. After the compression had been continued for some time, as the pulsation continued to be strong, it was resolved to give a trial to galvanism combined with compression. By applying pressure upon the artery above and below the aneurism, so as to retain the contents of the sac until acted on by the galvanic current, it was expected that one of the principal causes of the failure of this proceeding would be avoided; the case likewise seemed to be a favourable one, in this respect that the blood contained a very large amount of serum in proportion to the fibrine.

"April 21st. A clamp was applied upon the artery above the aneurismal sac, and another below it; two acupuncture needles

¹ Monthly Journal of Medical Science. October 1844.

(insulated except at their points and hafts) were then introduced from opposite sides into the aneurismal sac, and brought into connection with a Smee's battery by Dr Apjohn, Professor of Chemistry to the Royal College of Surgeons, who kindly afforded his services, and the galvanic current was maintained by him for about fifteen minutes at intervals. It was intended to repeat the application after a short interval, and in the meantime the patient continued the compression. In order to hasten the cure (as he thought) he had kept up very strong pressure upon the artery in the thigh for many hours, when seven days after the employment of the galvanopuncture, he was seized with a shivering, erysipelas (which was prevalent at the time) attacked the part of the thigh upon which the pad of the instrument rested, it spread upwards and downwards, and the patient died on the 4th of May, six days afterwards."¹

The following case, kindly communicated to me by Mr Busk, shows that in unfavourable circumstances the defective circulation caused by compression may prove fatal to the limb:—

Extract of a Letter from George Busk, Esq., to Dr Stewart, Deputy Inspector of Naval Hospitals, dated Greenwich, Dec. 2, 1846.

"I am very glad to furnish you with the particulars of the case of Popliteal Aneurism treated by pressure upon the artery, for Mr Syme's information. Though little can be said on the subject from a single case, and that in some respects exceptionable, I quite agree with him in thinking that the new mode of treating aneurism in the ham, offers but little or no advantage over the Hunterian operation, when skilfully performed. It is more tedious, and, on the whole, undoubtedly more painful, and, as the present case shows, is not free from one at least of the same risks as attend the operation of tying the artery, viz. gangrene of the limb, from the stoppage of the circulation, gradually as it appeared in this case to have been effected.

"CASE.—J. B., æt. 29, was admitted on the 11th December 1845. A man of healthy aspect, and who had always enjoyed good health. He complained of painful swelling of the whole of the left knee joint, which was distended evidently with synovial effusion; but, on stricter examination, an aneurismal tumour, about the size of a goose's egg, but flattened, and with a powerful thrilling impulse, was detected in the popliteal space. The affection appeared, from his account, to have commenced without assignable cause, and with a pungent pain in the ham, on the 30th November, or 12 days only previously. Pressure on the femoral readily stayed the pulsation in the tumour, which was then almost wholly dispersed. The knee joint, however, was permanently distended with fluid effusion, and was painful on motion. I determined, in what seemed such

¹ Dublin Med. Press, Oct. 14, 1846, p. 246.

a favourable case, to employ the mode of treatment by pressure, which was adopted in the following mode :—The limb was carefully bandaged from the toes up to the groin with a long narrow firm pad along the course of the femoral artery, and with a broad wooden split splint applied on the back of the thigh, upon which splint one extremity of the Italian tourniquet was fixed, and the other brought round the outside of the thigh, pressed upon the superficial femoral a little above Scarpa's angle, and a few turns of the screw sufficed to command the artery completely, without compressing any other part of the limb. The handle of the instrument was committed to the patient's own care, with directions to turn it one way or the other, as his feelings of pain induced him. The pressure which he kept up, without causing himself any pain, was sufficient, not at all times, to stop the pulsation in the tumour, though he usually effected this for some part of the day, but merely materially to lessen it. No particular change took place for several days, at the end of which, however, it was found requisite to relax the bandages on the limb, owing to the tension produced by the tendency to swelling, apparently arising from pressure on the femoral vein. This relaxation relieved the pain everywhere, except in the knee, which continued painful, and much swelled. The tumour remained stationary, and, at the end of about ten days, the pulsation in it was much less powerful, and it appeared to be becoming solid. The man never complained of the pressure of the tourniquet, which was completely under his own control; but about this time he began to feel considerable pain in the foot and inside of the leg, which seemed to be referable to the course of the saphenus nerve. He became feverish, and had one or two chills, but there was nothing very remarkable till the 14th day after commencing the application of the pressure, on which morning, pulsation could not be at all felt in the now solid remains of the much diminished tumour. The knee was much swelled, red, and painful, and a suspicious looking white spot had made its appearance on the dorsum of the foot. The pressure of the tourniquet, which had been almost nothing for twenty-four hours, was entirely removed, and assiduous friction of the leg and foot was kept up, with fomentation to the knee. The gangrenous spot, however, by evening, had become more decided, and rapidly increased, and, on the following day, the whole leg, about half way up the calf, was cold and insensible, and very rapidly fell into complete gangrene. This gangrene then extended more slowly nearly up to the knee, and in the course of two or three days appeared inclined to reach no farther. He complained still very much of the knee, and I consequently thought it advisable (though, under the circumstances, very reluctantly) to remove the limb in the lower third of the thigh. The man, however, scarcely rallied from the shock of this operation, and died in about four days with diffuse gangrene of the lungs.

“The femoral artery at the site of pressure presented no sign of alteration, and seemed to be of the natural size thence downwards.

In the ham was a firm, hard, aneurismal tumour, about the size of a hen's egg, situated on the anterior aspect of the artery, with which it communicated by a large ragged opening. The cavity of the sac was occupied in great part by firm, laminated, fibrinous coagula, and quite in the centre by a softer, grumous clot. The cellular tissue surrounding the tumour, was infiltrated with pus, and the capsule of the knee joint was perforated by a small ulcerated opening, caused evidently by the pressure of the aneurismal tumour. The joint contained a large quantity of turbid synovial fluid, and the synovial membrane, except on the cartilages, was minutely injected.

"From this short account you will observe that the gangrene of the limb was probably coincident with the cessation of the flow of blood through the aneurismal sac and popliteal artery, the collateral circulation at the same time not having been satisfactorily established, owing perhaps to the morbid condition of the textures surrounding the knee joint. It is of course impossible to say whether, under these circumstances, the old operation would have been attended with a more happy result; though I am inclined myself to think that it would, principally for the reason that the mischief in and about the knee, would, in a great degree, have been prevented by an earlier dispersion of the aneurism. I have tied the femoral artery nine times—eight for popliteal and once for femoral aneurism, and always successfully, as far as the operation was concerned. That is, I never had secondary hemorrhage nor gangrene. In the femoral aneurism, the sac suppurated, and the man died some months afterwards, worn out by the discharge and other disease; and in one case of popliteal (diffuse), amputation of the limb was required, eighteen months or two years afterwards, in consequence of gangrene (slow) of the foot, after exposure to cold. The others were completely successful, and the average time of confinement to bed, about fifteen or sixteen days. In my opinion the operation is less painful and attended with as little risk, when properly performed, as the mode of treatment by pressure."

The following case, I think, tends to show that, in a patient labouring under complicated disease of the circulating system, prolonged obstruction to the flow of blood through so large a portion of the body as the whole inferior extremity, may prove seriously hurtful. The advocates of pressure are accustomed to assert that the sudden obstruction caused by ligature, must occasion much more inconvenience than the gradual effect of pressure. But this statement is altogether opposed to experience; and although we may not be able to explain it fully, there can be no doubt of the fact, that infinitely less disturbance, either locally or generally, results from the complete stoppage effected by ligature, than from merely impeded circulation, whether caused by external pressure, or produced by swelling in the interior of a limb.

"Mr Newcombe now produced the morbid specimens, including

the heart, which were taken from the individual just alluded to by Mr Cusack, as having been the subject of the popliteal aneurism which had been treated by compression. The man, *ætat.* 30, as Mr Cusack had observed, died very unfortunately just as the cure was effected. He was admitted to Steevens' Hospital about a month since, labouring under popliteal aneurism, having at the same time strong and violent action of the heart, so much so, that all the superficial arteries could be seen pulsating, exhibiting a well-marked aneurismal diathesis. Immediately after his admission to hospital, pressure was applied to the femoral artery in the same manner as had been done in other cases which were recently before the society. He became so restless from its effects (though he was watched most carefully) that it was resolved to discontinue its use for some days. Examination with the stethoscope had detected the presence of patency of both semilunar and mitral valves, accompanied with considerable hypertrophy of the left ventricle. He was now left quiet for ten days, the pressure having been resumed, however, a fortnight before his death. On the ninth day after the reapplication of the pressure, symptoms of improvement (which hitherto had been trifling indeed) were manifest. Slight thickening of the sac had been previously observable at times, but it always disappeared in a few hours. Towards the evening of last Monday, the sac had increased in thickness, and the pulsation in the tumour was much weaker when even a moderate degree of pressure was kept up. On Wednesday the tumour was completely free from pulsation, though the amount of pressure was very slight. However, the instruments were left on till Friday evening, when he died in the sudden way described by Mr Cusack. This case possessed a considerable degree of interest, inasmuch as even with the unfavourable condition of the heart and arteries, displayed by the preparation on the table, a complete cure has been effected, as the society could see in the preparation of the tumour now before them. The tumour, he observed, was now considerably smaller than when the treatment had been commenced. The artery was pervious down to within one-fourth of an inch of the tumour; it was there filled by a firm coagulum, which extended into the sac, and completely filled it. The sac was at the anterior part of the artery, and communicated with the latter by a large round opening, which may perhaps account for the length of time the coagulum took in forming. The patient had suffered a good deal from pain and tenderness in the tumour, which the fact of a nerve passing directly over the tumour will account for. Both anterior and posterior tibial arteries were pervious, and appeared to carry on their usual functions. The pressure had been chiefly confined to the portion of the femoral artery near the origin of the profunda; here some slight thickening of the cellular tissue surrounding the vessel was observed, but there was no change whatever visible in the vessel itself. The heart was much enlarged: great hypertrophy of left ventricle. The *carneæ columnæ* would be

also seen very much larger than was natural. The arch of the aorta was dilated and somewhat thinner than usual; on looking down from it to the semilunar valves, an open space may be seen, the valves being thin and weak. The mitral valves contain some hard deposits, and are also slightly patent. The left ventricle and the arch of the aorta contained fluid blood at the time of the examination, which was made about six hours after the death of the patient.”¹

It will be remarked that this patient was rendered “restless” by the pressure, and died forty-eight hours after pulsation ceased to be felt, while the tourniquet still remained applied to the limb. Yet, in a tabular statement by the editor of the *Dublin Medical Journal*,² this case is entered as “Cured;” and in another notice of it by the same author, the patient is said to have “died suddenly of disease of the heart before leaving the hospital.” Indeed, there appears to be some peculiarity in the *Dublin* reports on this subject, since, with regard to another case, it is said that, “after recovery the popliteal artery of the affected limb pulsated as strongly as that of the sound one,” which is plainly quite impossible, if there really had been an aneurism.

Independently of the danger that might proceed directly from compression, I regarded the risk of failure as a very serious objection to this method, not merely, with reference to its rendering profitless the patient’s suffering and confinement, but still more on account of the difficulty that might afterwards be experienced in performing the operation, from thickening and condensation of textures caused by the pressure. Many instances of failure have come to my knowledge, and I am also credibly informed that the apprehension just expressed has been fully verified by experience. But as the operators have not thought proper to publish their cases, they can at present be only referred to in a general way, as confirming this opinion, which, indeed, requires no further support than what is afforded by Mr Cusack’s case, already related, as in it there is the evidence of dissection, that “thickening of the cellular tissue surrounding the vessel” may result from even a comparatively moderate degree of pressure. On the whole, there is reason to believe that the ligature, when properly performed, is safer than compression; but I need not insist upon this reason of preference, and may next inquire into their relative superiority, with reference to the respective degree of facility and suffering that attends their employment.

The ligature is usually accomplished in two or three minutes, without any trouble to the operator, and hardly any pain to the patient, who, after the skin is divided, seldom expresses more than a slight feeling of uneasiness; and even when difficulty is experienced in detaching the vessel, the operation, though protracted in

¹ *Dub. Med. Press*, April 30. 1845, p. 275.

² *Dub. Journ. of Med. Science*, Aug. 1846, p. 129.

duration, is attended with little additional pain. If the sheath of the vessel be opened on the outer or fibular side, by slightly withdrawing the edge of the sartorius muscle, there is little risk of cutting any arterial branch, and the hemorrhage seldom exceeds one or two tea-spoonfuls. The wound generally unites by the first intention, and when it does not do so, heals by granulation without pain or inconvenience. The patient during his confinement lies in perfect tranquillity, sleeping soundly, taking the food given to him with appetite, and able to be amused by reading, writing, or conversation.

Pressure on the trunk of an artery sufficient to arrest or impede the flow of blood through it, notwithstanding all that has been done by mechanical contrivance to lessen the inconvenience of its effects, must always be more or less distressing to the patient, by the local uneasy feelings and general commotion of the system which it occasions. Few, indeed, would submit to it, except through their dread of an operation represented to them with alarming features; and not a few have insisted upon encountering the knife, notwithstanding all their apprehensions, rather than prolong their martyrdom under the tourniquet. In twenty-three cases of aneurism, reported by Mr Bellingham, from the practice of seventeen surgeons, as successfully treated by pressure, I find that the average duration, not of the treatment, but of the actual compression, excluding the intervals of its discontinuance, amounted to thirty-eight days. Thirty-eight days and nights of misery, to escape a few minutes of trivial uneasiness!

The question between ligature and compression seems very much the same as that between passing a catheter and puncturing the bladder for retention of urine. If the surgeon can with safety relieve his patient by means of the catheter, he should certainly do it. But if, instead of drawing off the water, he can in this way only lacerate the urethra, and make false passages through it, his duty is plainly to thrust a trocar into the bladder. Now, as it is not likely that all the gentlemen I have from year to year the honour of addressing in my lectures, will be able, throughout the whole course of their practice, to avoid puncturing the bladder; it may be thought improper for me, during seventeen years' discharge of hospital duty, to have never resorted to this operation—even in a single instance. But while a clinical teacher has to regard the interests of his pupils, as well as those of his patients, the former must always be held secondary to the latter. If it is in my power to afford relief by the catheter, I am bound to do so; and, on the same principle, so long as it is my sincere persuasion that ligature of the artery is preferable to pressure, for the cure of popliteal aneurism, I shall deem it my duty to pursue this method, though it may not, perhaps, be the best suited for the lowest capacity of surgical skill. Puncture of the bladder and compression of the femoral artery may be useful expedients when circumstances forbid the adoption of better means; and I am far from desiring

that either the one or the other should be excluded from the practice of surgery ; but it would surely be unreasonable to insist upon these clumsy, painful, and I will add dangerous, methods of treatment being employed upon all occasions, instead of those which, when properly executed, are easy, gentle, and safe. Puncturing the bladder is certainly better than leaving the patient to his fate, or aggravating it by mischievous poking with catheters ; and compression of the artery is undoubtedly better than its rude or careless ligature. Let every man act according to his powers ; but let no one who feels it necessary to choose inferior means, throw blame upon those who are able to practise a higher exercise of their art.

ARTICLE II.—*Statistics of the Edinburgh Lock Hospital during 1841 and '42, bearing in particular on the Non-Mercurial Treatment of the Venereal Disease.* By P. S. K. NEWBIGGING, M.D., F.R.C.S.E., Senior Physician to the New Town Dispensary of Edinburgh ; late Physician to the Edinburgh Lock Hospital, &c., &c.

DURING the years 1841 and '42, the number of patients treated in the Edinburgh Lock Hospital amounted to 626, presenting various examples of the venereal disease, which I have classified in a tabular form. It is necessary here to remark, so that no ambiguity may occur in regard to numbers, that the same individual occasionally illustrated more than one form of the malady, *e. g.*, ulcer and bubo, so that, in arranging the tables from which the following abstract is taken, this fact is kept in view, and consequently the number of specimens of disease exceeds the actual number of the patients admitted into the hospital.

The number of patients admitted to the benefit of the charity during 1841 and '42 was 626, of which there were 370 specimens of primary sore, and 79 cases of bubo. Of primary ulcers, admitted while the patient was affected with secondary symptoms, there were 63, and 331 instances of gonorrhœa. The number who had taken mercury previous to admission was 19. The average duration of treatment was 30 days. The age at which the greatest number of admissions took place was between 15 and 25, there being 548 at this period of life. The age of the youngest patients, not including those in arms accompanying their mothers, was eight years, and the oldest was 46. The number who had borne children was 87. In 34 patients the menses had not appeared.

The following general statistics must be considered merely as an approximation to the truth, as it is at all times, and especially in this country, extremely difficult to procure accurate data upon this subject. Out of 587, of whom any record had been kept, 11 were known to be doing well ; 89 had promised well, yet doubtful ; 71 had been sent to charities, including the Magdalene Asylum, the

Ladies' Shelter, House of Refuge, &c., and the remainder, viz. 416, were believed to have returned to vice.

It may be interesting to mention, that of 378 patients regarding whom any record had been kept, 176 could both read and write, 153 could not write, and 49 could neither read nor write.¹

I may preface the following observations by remarking, that the field of observation in such an institution is necessarily limited, and some facts it is difficult, if not impossible, to ascertain accurately; still I am inclined to hope that, so far as my report goes, the results may furnish some important data, and will at least serve as an aid in the formation of future statements of the kind, which, being presented annually to the profession, an accumulation of experience, accurately recorded, may in due time come to prove of some value, as the basis of further statistical inquiries.

The nature, character, and treatment of the venereal disease have occupied a good deal of the attention of medical men, both here and abroad, and much discussion has arisen from time to time in regard to its specific poisonous action on the system, and the influence of various remedies, recommended at different periods for the cure of a disease, whose ravages assumed at one time a very formidable aspect. Fortunately, in those days we are not called upon to witness the aggravated cases, as reported in the works of older authors, although occasionally sporadic cases do occur, presenting unhealthy appearances, but which speedily yield to the rational method of treatment, now almost generally adopted.

I believe it is an acknowledged opinion amongst medical men, that the venereal disease has been mitigated by the action of two principal causes, viz. the improvement which the habits of the people generally have undergone, as exhibited in the greater attention to cleanliness, ventilation, and clothing, and to the adoption of a system of treatment based upon scientific principles. On entering upon my duties at the Lock Hospital, I found that mercury was seldom employed in the treatment of the cases in the institution; and although I felt somewhat sceptical of the expediency of excluding mercury in the treatment of all cases of syphilis, I was resolved to follow out the plan, and make my observation; and now that I have subjected to treatment upwards of 600 cases, of various forms of the venereal disease, I have in no case found it necessary to have recourse to mercury.

The cases have eventually done well; the duration of treatment has not been longer than in other similar establishments, and much shorter than under the old system, of administering mercury in almost every case; and the appearance of secondary affections has been in small proportion to the amount of primary disease; and when these did occur, they were considerably less serious in their character.

¹ The above Abstract is drawn up from exact Tables in my possession, in the preparation of which I was assisted by Dr George Smith, of the Honourable East India Company's Service, formerly House Surgeon to the Lock Hospital.

An additional reason, and one which, in my opinion, is of considerable weight, is the circumstance, that the great majority of the individuals who are admitted to the benefits of the hospital, are of the very lowest class in society, who have been leading a reckless, and, in every sense, abandoned life, until it may be, the very day on which they apply for admission to the charity, and who, immediately upon being dismissed, too frequently return to the haunts of vice from whence they came. I feel confident, that were such individuals treated with mercury for the cure of their disorder, their constitutions would be undermined, and, subjected as they are, to the vicissitudes of the weather, and to all the deleterious influence of the lowest kinds of dissipation, they could not withstand, in such circumstances, the baneful effects of that metal.

It is not my intention, in these observations, to go into any minute examination of the various phenomena of the venereal disease, nor to advert to all the points touched upon in the statistic report. The two subjects I have chiefly confined myself to, and which, to the community at large, I consider the most important, are, first,—the relative duration of treatment under the mercurial and under the non-mercurial system; and, secondly,—the relative frequency of the occurrence of secondary symptoms after the employment of both methods.

In reference to the first point, we find that the average duration of treatment by the non-mercurial method, as stated by Thomson, Bartlett, Hennen, Hill, and others, is about thirty-two days.

Dr Fricke, of the Hamburg General Hospital, had treated, when he published the results of his observations on venereal disease, 1640 patients, of both sexes, one portion with mercury, and another without it; the results showed that 51 days sufficed for the cure of the disease under the non-mercurial system, whereas 85 days was the mean duration of the treatment by mercury.

M. Duvergié's tables exhibit a duration of treatment by the simple method, of 30 to 50 days, while under the mercurial plan it extends to 80 and 90 days, and this over several thousand cases. The mean duration of cures in the hospitals of Sweden under the non-mercurial method, is 40 days. In the hospital of Rennes, the duration of cure by the non-mercurial system was 34 days; by the mercurial, 59.

M. Disruelles states that, out of 1312 cases, 461 of which were subjected to the mercurial treatment, and the remainder, viz. 851 to the non-mercurial, the duration of the first class was 50 days; of the second, viz. the non-mercurial, 32 days. My own experience in the Lock Hospital over 626 cases, during two years, is about 30 days, and this including all forms of the disease. It thus appears, as far as my observation and reading will permit me to judge, that the duration of the malady under the mercurial method of treatment is about one-third longer than by the simple method; but this advantage is perhaps of minor importance in comparison with that of the second

division of the subject, viz. the comparative relative frequency of the occurrence of secondary symptoms after the mercurial, and after the non-mercurial method. On this point I do not consider that I possess sufficiently exact data, gathered from my own observation in the Lock Hospital, to justify me in coming to any decided conclusion; but I may here offer the opinion, that the occurrence of secondary affections is less frequent after the simple plan of treatment than when mercury has been administered, and that when these do occur, they are of a far less formidable character.

Dr Thomson states that, out of 155 cases affected with primary syphilis, and which were treated without mercury, in 14, secondary affections supervened.

Dr Fricke of Hamburg found that relapses were more frequent, and secondary symptoms more severe, when mercury had been administered, but when the non-mercurial plan was followed, these rarely occurred; and when they did, were more simple and mild in their form. The result of the observations in the venereal hospitals of Sweden, over a period of eight years, and including about 26,000 cases, nearly an equal number being treated by mercury, and by the non-mercurial method, shows that the occurrence of secondary symptoms in the former, is as 1 in 7, while by the simple plan, it is 1 in 13. We have here an amount of experience of very great value, and such as may be thoroughly depended upon, and over so vast a number of cases, that it is scarcely necessary to quote further on this head.

We are, I think, justified in drawing the following conclusions from these statements:—1st, That the venereal disease is curable without the employment of mercury. 2d, That the duration of treatment is shorter than when mercury is used. And, 3d, That the cases of secondary symptoms supervening after the simple method are less frequent, and not so serious in their nature, as under the mercurial system.

I would remark, that whilst the statistic results serve to show not only that the venereal disease, in all its forms, may be successfully treated without mercury, but that in ordinary cases it is preferable to avoid the employment of it, I have so much confidence in the beneficial effects of this drug, in that inflammatory state where there is a tendency to the deposit of lymph, or where that condition already exists, that I candidly confess, I have never ventured to treat a case of Iritis without it, and its almost visible influence in arresting the malady, or in removing the injury when done, is so striking, that I cannot readily relinquish the valuable assistance derived from mercury in the cure of that disease. Moreover, I consider, that when other plans of treatment, and what is termed the simple method, have been fully tried, and without success, we should not refuse our patient the chance of being benefited by mercury, especially as we can, to a certain extent, protect him against its injurious effects by using it in moderate doses, and by carefully watching its influence on the system, and on the character of the malady for which it is administered.

ARTICLE III.—*Case of Spina Bifida, in which the External Tumour was successfully removed.* By WILLIAM B. PAGE, Esq., Surgeon to the Cumberland Infirmary, Carlisle.

ANNE PATTISON, a child twenty-one months old, was brought to me in September 1845, with spina bifida. The tumour, which was of a spheroidal form, measured in its greatest circumference seven inches, and at its base five inches, and was situated opposite the lower lumbar vertebræ. The skin covering the tumour was marked by numerous irregularities, resembling cicatrices, one of which was considerably larger than the others; there were also several long coarse hairs, and a small patch of ichthyosis upon it. Fluctuation was distinct, but the tumour was not transparent, owing to the thickness of the integuments; the examination produced no pain, and it was found that the fluid passed readily from it into the spinal canal on the application of gentle pressure. The child appeared healthy and intelligent, had no paralysis, and was otherwise well formed. At the time of birth the tumour was about the size of a large walnut, and had gradually increased. About a year since the tumour was pressed upon by a medical practitioner, and its contents squeezed into the vertebral canal, which produced alarming cerebral symptoms, but no paralysis.

The almost uniformly fatal termination of this affection—a fatality probably but little, if at all, lessened by the means which have been adopted to remedy it—afforded but small encouragement for the employment of any active interference in this case. But while on the one hand the gradual increase of the tumour from the time of birth, and the somewhat unhealthy character of the integuments covering it, too plainly indicated that it was now progressing towards a fatal close, on the other hand, the general circumstances of the case seemed to warrant an attempt at cure, if such attempt were ever advisable. The healthful state of the child—its otherwise perfect formation—the absence of paralysis of the limbs—the perfect control over the bladder and rectum—the non-existence of hydrocephalus—the form of the tumour itself—and the negative proof of there being no filaments of the cord or its nerves connected with the walls of the cyst, which was afforded by the absence of pain or uneasiness on a careful examination of the tumour; these were all so many favourable points in the case.

The danger of operative interference being proportionate to the size of the communication between the interior of the tumour and the vertebral canal, I determined to endeavour, if possible, to diminish that communication before I attempted its removal. With this view I placed an elastic ligature of India-rubber around its base, just so tightly applied as to keep up a constant pressure, without occasioning any material inconvenience to the child. Soon after its application, the tumour became inflamed on its surface, and through a minute opening a clear serous fluid escaped for several

days, the tumour slowly diminishing at the same time. On the fifth day it was found necessary to remove the ligature, it having produced a ring of ulceration beneath it, in which it was embedded. This wound very slowly healed, a strip of lint being kept constantly in it to prevent the adhesion of the abraded surfaces, as that would in a great measure have frustrated the end in view—namely, the contraction of the base.

The result of this proceeding was exceedingly satisfactory, inasmuch as the neck was reduced to four inches and one-eighth in circumference, and the tumour itself was much diminished.

In November it was agreed by Dr Lonsdale (who from this time attended the case with me) and myself, to repeat the application of the ligature, which was attended with very similar results to those on the former occasion,—the same ulceration of, and slight oozing from, the surface. The ligature, however, caused a much deeper wound than before, and after its removal on the fifth day, it assumed for a considerable time so unhealthy an appearance, as to give rise to much anxiety. An attack of scarlet-fever about this time, which reduced the child's powers materially, tended very much to increase this anxiety, and to render our prognosis still less favourable. The long continuance of the scarlatinous redness of the skin covering the tumour was remarkable.

The diminution of the tumour which had on both occasions been observed, from the gradual escape of a portion of its contents, determined us to have recourse to acupuncture, which, however, was unattended with benefit; and subsequently, with a view of gradually evacuating the fluid within it, and, possibly, also of inducing such an amount of inflammation as might cause adhesion of its walls, a seton was twice introduced. No amendment, however, ensued from this, and the irritation of the thread gave rise to unhealthy ulceration of the skin.

In March, the wounds having been for some time quite healed, the child's health much improved, and the parents extremely anxious for the entire removal of the tumour (being wearied with the tediousness of the means hitherto adopted), its extirpation was resolved on. The circumference of the tumour was at this time six inches, that of its base three inches and a half.

On the 9th instant, assisted by Drs Lonsdale and Coburn, I removed the tumour in the following manner:—The child being held firmly and lying on its abdomen, an incision was made through the integuments, commencing from the base at its upper, and extending downwards over the tumour until it reached its junction with the back at its lower part; a second incision, commencing and terminating at the extremities of the first was then made, leaving an elliptical portion of skin attached to the tumour; the flaps of skin were then divided into two parts by an incision at right angles to the first, and very carefully dissected from the surface of the cyst, the walls of which were found to be in some

parts very thin. The whole tumour being fully exposed down to its base, a strong ligature was tightly applied, and the tumour removed as closely as possible above it. The flaps of skin were now laid together, a dossil of lint placed over the wound, and a flannel bandage firmly applied around the body. A slight opiate was soon after administered, and the child passed a tolerably comfortable night. For a few days the urine and fæces were passed in the bed, but this was probably not dependent on any other cause than the child's fear of being disturbed.

On the third day the dressings were removed, when it was found that the flaps of skin were dead, but the wound appeared healthy. On the sixth day, the ligature, with its enclosed portion of tumour, came away, leaving a wound somewhat larger than a shilling, in the middle of which the membranes of the cord were distinctly seen. The child's state was now one of great peril, and caused us much anxiety. A pledget of lint was kept over the wound, and a flannel bandage constantly applied around the body, the child being at the same time kept as much as possible lying on its abdomen. The wound gradually contracted, and on the 15th of April, five weeks after the operation, was perfectly healed. Since this time, the child has suffered no inconvenience; the cicatrix has much contracted, and now forms a firm covering and support to the spinal membranes. It is also worthy of note, that the vacancy in the posterior walls of the vertebral column, has perceptibly diminished since the removal of the cyst—an effect somewhat similar to that observed after the operation for cleft palate.

The examination of the tumour, demonstrated that it was a cyst of sufficient size to contain a small walnut, its walls being formed by an expansion of the arachnoid and dura-mater, invested by the common integuments. A second cyst, containing a few drops of transparent, colourless serum, existed between the arachnoid and dura-mater. The cyst varied considerably in thickness in different parts, the membranes being in some places much thickened, and throughout intimately united together, with the exception of that portion occupied by the few drops of fluid. No nerves were found connected with the interior of the sac.

The means adopted in the foregoing example of spina bifida, are of course only applicable to those cases in which the base of the tumour is more or less pediculated, and of these there are but few in which such interference could be employed with any prospect of success, the cord, or its nerves, being, in the great majority of instances, connected with the interior of the cyst. But inasmuch as the tumour almost uniformly enlarges, until ulceration of its walls takes place, speedily followed by death, it is important to distinguish, if possible, those which have no such connections, and in which the tumour may be removed with no other danger than that resulting from the exposure of, and injury to, the membranes of the cord—a danger in itself sufficiently alarming, and which could

only be rendered justifiable by the fatal nature of the affection it is intended to remedy. The absence of any morbid sensibility when the tumour was moved upon itself, or when pressure was exerted in any part of it, together with the perfect formation of the lower limbs, and the entire control over them, the bladder and rectum, were, in the present instance, considered sufficient evidence of there being no nervous filaments connected with the interior of the cyst, and probably the same diagnostic signs would furnish equally correct information in most, if not in all cases. Other circumstances concurred to confirm the favourable prognosis with regard to this child, and in this, as in all other operations, certain peculiarities in each case, must render success in a greater or less degree probable.

In the majority of those cases where the base of the tumour is its largest part, and where the probable absence of nervous connexions justifies any interference, some degree of palliation only can be anticipated. The occasional evacuation of a part of the fluid in the sac, and the subsequent application of pressure; the introduction of a seton, and acupuncture, have each been attended with success in a few instances, where the tumour itself has been small, and the connexion with the spinal canal of limited extent; and in all such cases these or other similar methods may be resorted to, although they generally fail to effect the desired end. In those cases where the tumour is large, and the want of osseous development considerable, by the application of a hollow truss, or some other well adapted support, and by the occasional abstraction of a small quantity of fluid on the slightest evidence of pain, or redness in any part of the tumour, that distension, which would otherwise give rise to ulceration, and the sudden discharge of its contents, may be relieved, and the fatal issue deferred.

Even at a very advanced period, the withdrawal of a portion of the fluid may avert the impending ulceration of the cyst:—A child, three months old, was brought to me, with a tumour extending more than half way across its loins, with the skin so much distended and inflamed at its most prominent part as to appear in imminent danger of rupture. I introduced a small trocar, and drew off six ounces of fluid, and subsequently applied a large pasteboard splint and bandage. On the following day the puncture was healed, and the inflamed portion of the skin was fast assuming a healthy aspect. This child died in convulsions twelve days after, probably from the effects of the operation, although, so long as I had an opportunity of observing it (eight days), there was no evidence of any serious disturbance resulting. In puncturing these tumours, it is important to remember, that the cord and its nerves are more generally connected with the middle and upper part of the tumour than with the sides and lower part, and that consequently the latter situation should be selected.

The instances of spina bifida, in which the skin and membranes

have been sufficiently strong to support the distension, and in which life has not been curtailed by the presence of the tumour, although very limited in number, are sufficiently numerous not to warrant any active interference, where the slow increase of the tumour and healthy appearance of the skin afford any probability of so favourable a result. Such a case came under my notice a short time since, in the person of a child three years of age, who had a tumour in the loins the size of a foetal head, the increase of which has been so gradual (although no means have been employed to arrest it), and the appearance of the skin is so healthy and equable as to give reason to hope that she may live to be added to that small number who have arrived at mature age with such an incumbrance. I also casually met with a boy, about thirteen years of age, a few years since, with a tumour the size of an orange, situated over the lower cervical vertebræ, which had ceased to enlarge for several years, although it had been subjected to no treatment, and which occasioned no other inconvenience than that which must necessarily result from the presence of this appendage.

A New Method of Applying Ligatures to Tumours. By WILLIAM FERGUSSON, Esq., Professor of Surgery in King's College, London, &c.

THE surgeon has frequently to apply ligatures to tumours; in one instance, with the premeditated view of avoiding serious hemorrhage, and causing strangulation at the same time; in another, on account of profuse bleeding that may have followed a partial use of the knife, or from uncertainty as to the magnitude of vessels in the pedicle of a growth about to be removed. Some practitioners give preference to the ligature, over every other mode of removing or destroying internal vascular piles, nævi, aneurisms by anastomosis, and certain forms of morbid growths, and the mode of deligation is usually a matter of taste, or preconceived opinion on the part of the operator. If the base or neck of the part about to be destroyed, be narrow, some are content with a single noose of ligature around it, while others prefer two or more, as may seem requisite; but in examples where the growth is flat and broad, a noose cannot be fixed without some contrivance to prevent it from slipping. In whatever way a ligature is applied, the principal object is, that it may be drawn so tightly upon the parts included in the noose, as to obstruct all circulation, and thereby cause the diseased mass to slough away;—if this be not attained in due time, the threads must be tightened or renewed. When there is great thickness of parts to be compressed, Graefe and others have used a kind of tourniquet, whereby, as the threads have slackened, the pressure has been re-applied, until the desired object has been

effected. Instead of silken or hempen cord for ligature, some have preferred wire of various metals, but the generality of surgeons have chosen the more flexible materials above named. I have myself made use of almost every kind of ligature, and tried nearly every plan that has been recommended, and entertain the opinion that no single wire, thread, or method, is applicable in all instances. Each case requires some modification peculiar to itself, and it is for the surgeon to determine which is most applicable.

Ligatures are most generally made use of in internal piles, vascular *nævi*, and aneurisms by anastomosis; and among those who have preferred this mode of treating such diseases, the following methods have been chiefly selected:—A needle, with a double thread, has been pushed across the centre of the diseased mass, and the latter has been strangulated in two portions, by drawing a noose on each end of the thread after it has been divided near the eye of the needle. This mode of treating *nævi* was specially brought under the notice of the Royal Medico-Chirurgical Society of London by Mr Lawrence in 1827, and his paper on the subject was published in the 13th volume of the Transactions. Through the same means, a paper by Mr Anthony White was made public, wherein he showed that he had, for many years, been in the habit of destroying the larger forms of *nævi* in this way. The plan is evidently superior to that with a single noose, there being no chance of the threads slipping completely off, and the two small nooses fulfilling the intentions of the surgeon with greater certainty and rapidity than the single large one. But the threads, even in this way, are liable to slip off the sides of a tumour, and portions may thus be left which it would be desirable to remove. Sir Benjamin Brodie, to obviate this defect, passed a couple of needles at right angles to each other, across a vascular tumour on the forehead, and bound a strong ligature round the base of the tumour, below the needles. A case thus treated was detailed by Sir Benjamin in the 15th volume of the Transactions of the Medical and Chirurgical Society of London. Dr Charles Barton, Dr John C. Warren,¹ and others, have followed the plan, and there can be no doubt that, in certain cases, it is preferable to that above referred to. Dr Warren and others have been in the habit of using two needles, each armed with a double ligature, and crossing the tumour at right angles. “The base of the tumour is to be tied by quarters, so as to include the whole in the eight threads.”² This method is that which has been long followed by Mr Liston, I believe; and, in conjunction with his plan of preserving portions of the skin covering the circumference of the tumour, by a partial dissection before the application of the ligatures, is probably the best generally known to the profession. Entertaining this view myself, I have very frequently had

¹ Warren on Tumours, p. 418.

² Warren, *op. cit.*, p. 418.

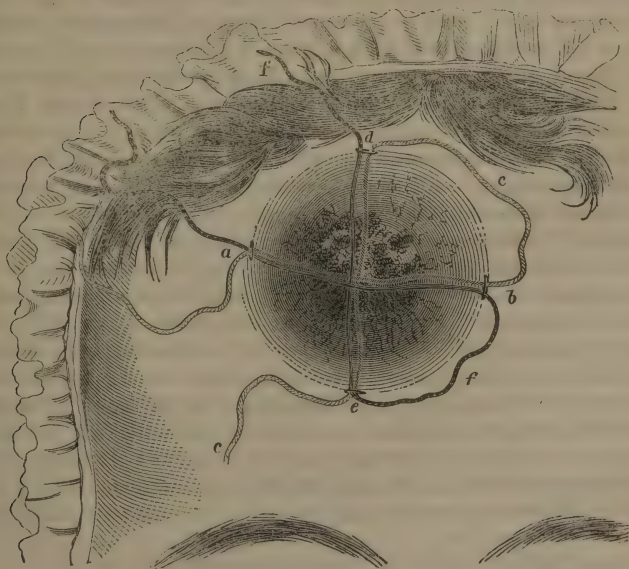
recourse to it. But the process is not altogether devoid of difficulty, if not of objection, as any one trying it will speedily find. Mr Liston thus describes his operation, as regards the ligature:¹ "One needle, that across the morbid mass, was in the first instance introduced without a ligature; the tumour was raised by means of it, and the second needle passed underneath the first, carrying a strong thread; the loop of this was laid hold of with a hook, and the needle withdrawn upon the ligature. The first needle was then armed also, and the double ligature brought through with it." "The ligatures are drawn on each side, or the ends are secured all round, the one to that next it, whilst the ligatures are tightly held; by pulling and securing the last very tightly, all the knots are drawn together under the tumour; in fact, the four ligatures are knotted in such a manner as to make one, and by drawing the last two ends tightly, the strangulation is rendered complete. The reef knot must be used for this purpose, and even a third knot should be made to prevent the ligatures slipping during the firm and strong pull upon the last two ends." Dr Warren² thus describes the "cross ligature," as he calls it: "A long, curved needle, carrying a double ligature of two strong silk threads, was entered at the top of the tumour, above the little process; and the tumour being pinched up and drawn outwards with the thumb and forefinger, with some little difficulty the needle was brought out near the clavicle. Another needle and ligature were passed across the neck, at right angles with the first. Then I took a thread of the first and second ligature, and tied them so as to include a quarter of the tumour, the opposite ends of these ligatures being held by an assistant, to prevent drawing them out. The first ligature was made without difficulty. When I came to tie the others, the unevenness of the neck caused them to slip on the tumour. To prevent this, I seized the tumour with a double curve-pointed forceps, and, drawing it outwards, confided it to an assistant. The remaining quarters were then tyed as tightly as possible. Finding, however, that the small process eluded the thread, before removing the forceps, a circular ligature was passed under the others, with a view to include the process." According to the description given by Mr Liston, and also to imitate the very pretty diagram which he has given, there can be no compression of the tumour until the last of the four knots is tied, and even then, as I have often experienced, the slipping of one or more of the knots may possibly thwart the surgeon's designs, until he has cast an additional noose or two to prevent further slipping. It frequently happens, too, when the three first knots are sufficiently firm, that when the final force is put on, these knots, instead of lying (midway perhaps) between the apertures where the needles have passed, are drawn against the surface of the tumour at one or other of the apertures,

¹ Practical Surgery.² Warren on Tumours, p. 424.

and if they be too large to pass readily into them, the strangulation will be incomplete, owing to the slackness of some of the loops—the slackness being both inside and out, as may be observed in the latter place by the looseness of the thread.

If the proper threads be selected, and tied at opposite corners, the objections last alluded to will be obviated, and in this way, also, two quarters of the tumour can be completely strangulated independent of the other threads. When these last are tied, the parts are wholly included. In this way, however, as well as in the others, there are eight ends of thread to deal with, and the knots first cast may slip, and so require further attention.

For some time past I have used a modification of these plans of Warren and Liston, which I consider an improvement, as it does away with the objections above alluded to. Supposing the tumour to be operated upon situated on the forehead, a curved needle, with the eye close upon its point, carrying a double ligature, and set in a handle, should be pushed across the part to be included, and withdrawn as soon as the thread is seized; the ligature should be cut in two, the end of the upper one should be passed through the eye of the needle, and carried through the centre of the tumour from above downwards, and then disentangled from the needle while the latter is still in its place; the corresponding end of the lower thread should now be passed through the eye of the needle, which should next be withdrawn, whereby the thread will be carried upwards, and then it is only requisite to draw a couple of knots to complete the strangulation. The accompanying diagram,



representing the threads passed across an aneurism by anastomosis on the forehead, and the following reference to letters, will, probably, make the description more intelligible. A double ligature, one end being of a different colour from the other, as advised in this Journal¹ by Dr Thomas Lee, and at a much earlier date by Benjamin Bell,² should be carried across from *a* to *b*, with a slightly curved needle set in a handle, the eye of which is near the point; the thread should then be seized at *b* with a hook or forceps, when the needle should be withdrawn and the two threads pulled further along. Now, the end of the thread marked *cc*, should be passed through the eye of the needle, which should then be pushed through the tumour, at right angles to its first course, from *d* to *e*; the thread should be disengaged while the needle is kept in its place; next the thread, marked *ff*, should be passed through the eye, and carried under the tumour, by withdrawing the needle. The needle being laid aside, it will be seen that if a loop be cast on the ends of the thread *cc* (which may be white), and another on the ends of *ff* (which may be black), the whole mass can be strangulated by tying two knots. Each thread crossing in the centre of the tumour, includes two quarters which are strangulated at the same time, when the requisite force is applied, and thus, when both are tied, "the base of the whole tumour," as Dr Warren would say, "is included in the eight threads."

The needle must be passed in such a way as to permit most, if not all, of the tumour to be included. If any little vascular spot be left after the ligatures are tied, there is a chance that it will increase, and require another operation; and if the deep part of the tumour has been omitted, there may be subsequent enlargement here too. If there be much sound skin over the disease, it will be best to dissect it off, so as to preserve flaps of it, and when this does not seem advisable, it may in some cases, be well to divide the skin where the threads are to be drawn close upon the tumour. The bleeding from these incisions, as also from the tracks of the needles, will cease as soon as the strangulation is effected. In the course of a day or two the included mass will become a black slough, which will separate about the sixth, eighth, or tenth day after the operation. A small sore will then be all that remains, and in a few days more the surface will heal over, when, if the tumour has been properly surrounded, the cure will be complete.

The written or verbal description of the manœuvres above detailed, is more difficult to understand than an ocular demonstration, and even with the diagram, the complication appears greater than when the threads are applied on a piece of cloth or on the disease. To any one familiar with the methods of Messrs Warren and Liston, the comparative simplicity and advantages of that which I have just described must, on trial, at once appear; for instead of having

¹ March 1845.² System of Surgery, seventh edition, vol. vi. p. 335.

eight ends to fasten, there are only four, and in lieu of four knots there are only two required, each of which may, with certainty, be drawn tight at the first attempt without fear of slipping, as often happens in the method followed by the surgeons just named. In addition, from the equal pressure kept up at all points, outside and in, the strangulation is more perfect.

In the *Lancet* for 1845,¹ Mr Christopher describes "a new method of applying ligatures to *nævi*," but in so far as I can perceive, it has little resemblance to that above mentioned, though, I doubt not, equally efficacious as regards strangulation.

I have looked over many authors on the subjects of *nævi*, piles, &c., and not found any notice of such a mode of applying ligatures as that above detailed; but whether it be original or not, I have thought it worthy of this publicity. I am free to admit, however, that it is a very small affair in connection even with minor surgery, though I consider it sufficiently important to occupy a prominent place in the long list of methods of treating *nævi*;—whilst for removing certain forms of piles, for strangulating portions of bronchocele and other tumours, when the surgeon is unwilling to use the knife, I believe it better than any with which I am acquainted.

DOVER STREET, PICCADILLY,
December 1846.

ARTICLE IV.—*Contributions to Pathology and Rational Medicine.*

By JOHN HUGHES BENNETT, M.D.; Lecturer on Pathology and the Practice of Physic; Director of the Polyclinic at the Royal Dispensary, Edinburgh, &c.

NO. V.—*On Exudation.* PART II.—*Its Development.*

EXUDATION of the liquor sanguinis having occurred, it generally undergoes coagulation. The period at which this takes place varies according to the amount of fibrine exuded. If the exudation be very serous, that is, contain comparatively a small amount of fibrine, the coagulation may be delayed for some time, and, if small in amount, may be re-absorbed before coagulation has occurred. This fluid exudation has been denominated fibrinous dropsy, and, in opening bodies after death it has frequently been observed that flakes of fibrine have been formed in the fluid after exposure to the air. If the fluid exudation be not great, and occur on mucous membranes, minute structures may form in it, and the whole may be excreted without its passing into a solid coagulum. When the matter exuded, however, is considerable, as takes place in what are called acute inflammations, it coagulates into a solid body, whilst the serum is set free. The same process occurs as takes place in

¹ Vol. i. p. 676.

the coagulation of blood, only there is, for the most part, absence of blood corpuscles, although these, in certain cases, are also extravasated, owing to rupture of some capillaries, communicating to the otherwise yellow exudation, more or less of a red colour.

The solid exudation, when formed, constitutes a foreign body, subject, however, to the vital laws of the organism, which induce in it certain changes, whereby it is either wholly absorbed, or converted into permanent tissue. These changes are very various, and are apparently influenced by the rapidity or slowness with which the exudation occurs; by the tissue or organ upon, or in which it takes place; or by those general circumstances which influence all development, such as temperature, moisture, and the peculiarities of the vital force. In every case the exudation constitutes a blastema for the growth of nucleated corpuscles, which differ in form, size, constitution, and power of further development, and give rise to those different appearances and changes, which in some cases have been denominated the results of inflammation, in others various kinds of morbid growths and deposits.

We find that the rapidity or amount of the exudation poured out in healthy individuals materially influences its subsequent development. Thus, an exudation occurring rapidly is transformed into cellular structures, of various kinds, the development and disintegration of which seem to break up the coagulated mass, and reduce it to such a molecular form, that it is capable of being again re-absorbed into the blood, and excreted from the body. On the other hand, when poured out slowly, the exudation is generally transformed into permanent tissues, constituting hypertrophies, and the various kinds of homologous tumours.

When, however, the vital powers are affected, or the constitution is tainted in certain unknown ways, which we are in the habit of designating by the terms Diathesis or Dyscrasia, the exudation is so influenced that it either assumes an unusual power of development, as in cancerous growths, or it is incapable of producing perfect cells at all, as in tubercular or typhous formations.

The various kinds of development of the exudation, therefore, may be grouped together under the following heads:

I. *Development into Isolated Cells, not possessing reproductive power.*

Plastic cells.

Pus cells.

Compound granular cells.

II. *Development into Normal Tissue, constituting Hypertrophies of the*

Epidermis and Epithelium.

Arcolar and fibrous tissue.

Fatty tissue.

Follicles and Vesicles.

Vascular tissue.

Muscular tissue.

Cartilaginous tissue.

Osseous tissue, &c.

III. *Development into Cells, possessing reproductive power.*

Encephaloid	} Formations.
Carcinomatous	
Colloid	

IV. *Development into Imperfect Cells.*

Tubercular	} Formations.
Typhous	

Each of these modes of development we shall describe separately. In doing this, we are of course under the necessity of giving to the minute corpuscles and particles certain names. The subject of nomenclature is a very difficult one, and the names hitherto employed have tended in no small degree to throw confusion on the subject. In a study so new as that of Histology, cultivated at the same time in so many places by different observers, it is to be expected that similar facts would be made known by various individuals independently of each other. This has really happened, and, unfortunately, the same things have frequently been distinguished by different names. Thus, we have certain corpuscles designated as globules of inflammation; granular cells; pus; pyoid, plastic, and exudation corpuscles, &c. But what we for a long time have called exudation corpuscles, are the globules of inflammation of Gluge, and the granular cells of Vogel. Again, what we have called plastic corpuscles, are the exudation cells of Valentin, and the pyoid globules of Lebert. On endeavouring to escape this confusion, we fall into a crowd of difficulties, for on what basis shall a nomenclature be formed? One corpuscle is no more an exudation, inflammation or granular cell, than another; for they are all developed in exudation, are all the result of inflammation, and are more or less granular. Fortunately no difference exists as to the name of those corpuscles found in good pus; but, with this exception, no uniformity prevails. We trust to be enabled, at no distant period, to bring forward a nomenclature which may be universally applicable. In the meantime, we can only guard against error by rendering our descriptions as exact as possible, and clearly stating the names given to any particular formation by each well known observer.

1. DEVELOPMENT OF THE EXUDATION INTO ISOLATED CELLS, NOT POSSESSING REPRODUCTIVE POWER.

When the exudation is thrown out rapidly in individuals otherwise healthy, it passes more or less into cell formation. The form in which the exudation coagulates must of course differ, according to the anatomical structure into which it occurs. Thus, on serous membranes, and sometimes on mucous, it forms those coagula, or laminae, known as plastic lymph. On mucous membranes, and the surface of granulating sores, in areolar tissue, and sometimes in the substance of organs, it is transformed into pus. In parenchymatous tissues and organs again, it frequently constitutes what has long been called inflammatory, and which we shall in future name exudative, softening. Lymph, pus, and exudative softening, possess a distinct and characteristic structure, which, as the types of development of the exudation in health, and as serving as a means of comparison between various morbid products, require to be well understood, and accurately described.

Transformation of the Exudation into Primitive Filaments and Plastic Corpuscles.—An exudation, poured out rapidly on a serous membrane, coagulates, the fibrine or solid portion attaching itself to the membrane, whilst the serum occupies the centre of the shut cavity. The solid portion is called coagulable lymph, which assumes different appearances according to the period when it has been formed, or its mode of exudation. At an early period it is gelatinous and semi-transparent, like trembling calf's foot jelly. After a time it becomes more and more opaque and consistent, so that it resembles opaque gelatine or blanc-mange. The serum is gradually absorbed, and the solid portion is transformed into a soft creamy substance, and absorbed, or passes into a firm fibrous tissue, constituting what has been called chronic lymph. This forms the adhesions between the opposing serous membranes, so common on the pleura, or becomes covered with a serous membrane, and leaves only as traces white indurated patches, such as are so frequently found on the pericardium.

The mode in which the exudation is thrown out, affects in some degree its appearance. The layer of lymph will be more or less thick, and extend over a greater surface in proportion to the amount of liquor sanguinis thrown out, and the number of capillaries affected. If successive exudations happen, various layers may be formed; and if it accumulate at different points, it may assume a flocculent or villous appearance. Sometimes the distension of the vessels is so great that they are ruptured, in which case more or less blood is extravasated, causing the exudation to assume various tints of red, mahogany, purple, &c., according to the amount thrown out, and the period which has elapsed before examination.

The exudation now described consists of three elements,—filaments, corpuscles, and granules.

The filaments at first are very delicate, running in parallel lines, composed of a series of molecules, the result of simple coagulation. As the lymph assumes firmness, the filaments become more distinct and consolidated. They are now characterised by two distinct and abrupt shadowed lines, having a clear space in between them. They are therefore solid, and vary in diameter, from $\frac{1}{800}$ to $\frac{1}{500}$ of a millimetre in diameter. Bundles, or different layers of them, often cross each other (fig. 1). As the lymph becomes older, they assume more and more the character of dense fibrous tissue. These filaments are not the result of cell development, a fact which we believe was first clearly stated by ourselves (1843), subsequently by Lebert, Engel, and Gunsburgh (1845), and lately by Paget (1846).

The corpuscles, when newly formed, are delicate and transparent, but in a short time become more distinct, and are then seen to be composed of a distinct cell wall, enclosing from 3 to 8 granules (fig. 1). They vary in size, from the $\frac{1}{100}$ to $\frac{1}{75}$, and the enclosed granules from $\frac{1}{700}$ to $\frac{1}{500}$ of a millimetre in diameter. On the addition of water and acetic acid the corpuscles undergo no change, although sometimes the latter reagent causes the cell wall to contract and thicken, and at others to be somewhat more transparent (fig. 1, a).

We have called these bodies *plastic* corpuscles, from the frequency of their occurrence in plastic lymph. By Valentin and others they have been named *exudation* corpuscles, and by Lebert, *pyoid*, from their resemblance to those in pus.

In what is called recent lymph, we find the filaments and corpuscles mixed together. As this becomes chronic, the corpuscles break down, and are absorbed, leaving nothing but the fibrous element visible. The molecules and granules exactly resemble those seen in most kinds of blastema, and do not require any particular description.

There are some occasions, when the exudation has been so abundant on a serous membrane, that it does not perfectly coagulate. The fibrinous and serous portions are not fully separated, and, under such circumstances, the corpuscles assume the character of those we are about to notice, which are found in pus. Indeed, in such cases



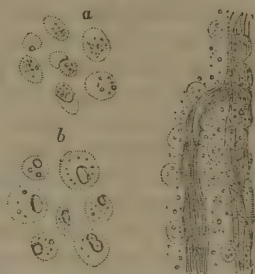
Plastic Corpuscles and Filaments in recent Lymph, exuded on the Pleura. a, The Corpuscles unchanged by acetic acid.

¹ All the structures are drawn as seen under a magnifying power of 250 diameters linear.

the exudation passes into pus, although some of the fibrous element still attaches itself to the membrane (fig. 2). This is the exception to the usual course of development in the exudation on a serous membrane.

When the exudation is poured out rapidly on a mucous surface, it sometimes coagulates in layers, of various degrees of thickness, as in croup, diphtheritis, and dysentery. The lymph so produced is, for the most part, composed of molecules and granules, having a fibrous arrangement, but rarely forms the distinct filaments and corpuscles seen so commonly on a serous surface. This is the exception to the usual manner in which exudation is developed on a mucous membrane.

Fig. 2.



Exudation from the surface of the Peritoneum passing into Pus; a, Isolated Corpuscles; b, after the addition of acetic acid.

Transformation of the Exudation into Pus Corpuscles.—Exudation poured out on a mucous membrane sometimes coagulates in a mass, forming lymph; but, in the generality of cases, passes into an opaque, unctuous, straw-coloured, or slightly greenish fluid, long known under the name of pus. When poured into the meshes of the areolar tissue, the same transformation occurs, constituting an abscess, the contents of which, in an otherwise healthy individual, must be considered as the type of this formation.

On examining well formed pus under high magnifying powers, we find it to be composed of numerous corpuscles, floating in a clear fluid. These corpuscles are perfectly globular in form, and vary in size, from the $\frac{1}{100}$ to the $\frac{1}{75}$ of a millimetre in diameter (fig. 3, c). Their surface is finely granular. They have a regular well-defined edge, and roll freely in the liquor puris upon each other. On the addition of water, they become much increased in size, their finely granular surface disappears, and they become more transparent. Weak acetic acid partially, and the strong acid completely dissolves the cell wall, and brings into view the nucleus, which generally assumes the appearance of two or three granules close together, each with a central shadowed spot (fig. 3, d). They are generally about the $\frac{1}{400}$ of a millimetre in diameter. Occasionally the nucleus may be thus seen to be composed of four, or even five, granules. Alkalies and ether completely dissolve the whole corpuscle.

These corpuscles seem to be produced in the following manner:—The exudation first forms a molecular and granular blastema, the individual granules of which unite together in twos and threes, to constitute the nucleus from which the cell wall arises. The early stages of the formation of pus may frequently be observed in the coagulated masses occasionally squeezed out of unripe abscesses,

and may also be seen in fluid exudation in the discharge from blisters, and early purulent formations, following frictions with tartar-emetic ointment.

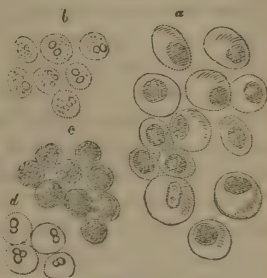
In grey hepatization of the lungs, and in minute abscesses, scattered through other parenchymatous tissues, we have frequently seen the bodies just described as pus corpuscles to be surrounded by a distinct, though very delicate, cell wall (fig. 3, *a*). The cell so formed is about the $\frac{1}{50}$ of a millimetre in diameter, and is highly elastic, assuming different shapes, according to the degree and direction of the pressure to which it is subjected. Water and acetic acid cause the cell wall to be at once dissolved, whilst the nucleus, which, before the addition of reagents, exactly resembled an ordinary pus corpuscle, exhibits the usual two or three granules, which, under these circumstances, must be considered as nucleoli (fig. 3, *b*). Are, then, the bodies, which have hitherto been considered as pus cells, only the nuclei of corpuscles, the delicate walls of which are dissolved very rapidly, and at an early period? We have no hesitation in stating, that this is the case in certain instances, but whether it be invariably so, requires further observation to determine.

Pus when formed on a mucous membrane is frequently mingled with epithelial cells in various stages of development. Some have spoken of mucous corpuscles, but there are no bodies peculiar to mucus. What have been described as such are sometimes those of pus, at others those of epithelium.

Transformation of the Exudation into Granules and Compound Granular Cells and Masses.—In parenchymatous organs the exudation insinuates itself among the elementary tissues of the organ, so that when it coagulates, these are imprisoned in a solid plasma, like stones in the mortar of a rough-cast wall. The whole then constitutes a firm mass, giving increased density to organs, a circumstance well observed in the lung, where the lesion, has long received the name of hepatization. The substance affected, however, is rendered more friable and soft than formerly. It constitutes the inflammatory softening of morbid anatomists, as seen in the brain, liver, kidney, and even in pulmonary hepatization, which may easily be broken down into a pulpy mass by the finger.

On examining this form of exudative softening under high magnifying powers, we find it to be composed of granules, granular

Fig. 3.



Corpuscles in Pus. a, Corpuscles in Grey Hepatization of the Lungs. b, The same, after the addition of acetic acid. c, Corpuscles in Pus, from a Subcutaneous Abscess. d, The same, after the addition of acetic acid.

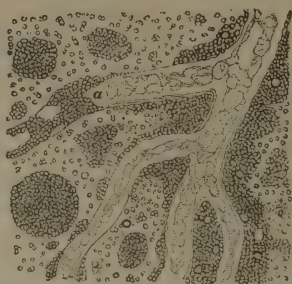
masses, and compound granular cells. The granules are frequently to be seen coating the vessels externally and filling up the intervascular spaces. Several of them are frequently agglutinated together, and peel off in masses varying in shape and size. The granules vary in size from the $\frac{1}{650}$ to $\frac{1}{500}$ of a millimetre in diameter. They always contain among them round transparent globules, resembling oil globules, varying in size from the $\frac{1}{300}$ to $\frac{1}{150}$ of a millimetre in diameter. These are the nuclei of future cells. The corpuscles are of a round or oval shape, with a nucleus, sometimes visible, at others not. They vary greatly in size, for the most part measuring from the $\frac{1}{50}$ to $\frac{1}{35}$ of a millimetre in diameter. They sometimes contain a few granules only, at others they are so completely filled with them, that they assume a brownish dark appearance. Water and acetic acid cause no change in them, although the latter reagent on some occasions renders the cell-walls more transparent. They are immediately soluble in ether, and break down into a molecular mass on the addition of potash and ammonia.

These structures we have been in the habit of calling *exudation granules*, *exudation masses*, and *exudation corpuscles*. The latter were called by Gluge, who first described them, *inflammation globules*. Vogel denominates them *granular cells*, and Henle calls the agglutinated masses *inflammation corpuscles*, after Gluge, and the corpuscles *granular cells*, after Vogel.

On gradually pressing the perfect corpuscle, by means of a compressor, large drops, like those of oil, may sometimes be made to appear within the cell-wall, or to exude through it, when it becomes more or less collapsed (fig. 5, *o*, *r*, *s*, *v*). By means of friction the cell-wall may be ruptured, and its contents dispersed (fig. 5, *u*, *v*). The nucleus under such circumstances will often be found very persistent. These different effects, as well as the various forms and appearances of the corpuscles in exudative softening, are accurately represented in fig. 5.

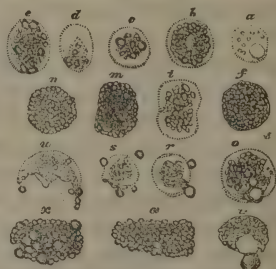
Compound granular corpuscles and masses from cerebral softening. a, Nucleated cell with a few granules. b, Granules within the cell, partly obscuring the nucleus. c, Granules over the nucleus. d, Granules within the cell, no

Fig. 4.



Granules and granular masses from softening of the brain, filling up the intervascular spaces, and coating the vessel at a. The transparent nuclei of cells may be seen here and there, among the granules.

Fig. 5.



nucleus visible. e, Cell nearly filled with granules. f, Cell completely filled with granules. i, Cell contracted in its middle. m, Cell nearly square. n, Round cell with the contained granules of even size. o to r, Show the effects of pressure. o, Globules of oil within the cell. r, Oil forced through the cell-wall. s, The same with alteration of shape. u, Rupture of the cell-wall. v, Nucleus forced out. w, Granular mass. x, Another mass containing large oil globules.

The formation of these granules, masses, and corpuscles, takes place in the following manner. The exudation first coagulates in minute granules, the colourless and larger bodies soon after seen among these are nuclei, upon which a cell-wall arises. Granules, nuclei, and cells may frequently be seen in all their stages of development, coating or encrusting the vessel externally (fig. 6). During or subsequent to its growth, granules are formed in the corpuscle, between the nucleus and cell-wall. These become more and more numerous, until at length the nucleus is obscured, and the whole cell appears full of and distended with granules. The masses which possess no cell-wall are nothing but portions of the coagulated exudation, which may frequently be seen under the microscope to break and peel off from the vessels. (Fig. 4.) The cells on the other hand are formed from the transparent colourless nucleus, formerly described, according to the general law of cytogenesis. When these are distended with granules, the structure appears to have reached its furthest stage of development—the cell-wall now bursts, or is dissolved, and its contents escape.

The granules, masses, and corpuscles we have just described, are found in the exudative softening of parenchymatous organs, on the surface of granulations and pyogenic membranes, accompanying pus corpuscles, combined with cancerous growths and tubercular deposits, and, lastly, in the colostrum, where they constitute the granular bodies first described by Mandl.

The different transformations of the exudation we have thus shortly described, serve the purpose of breaking it up when coagulated into a soft, pultaceous, and even diffuent mass. The cells in their process of development at length break down, and the fibrinous portions are thereby reduced to a fine molecular condition, so that the matters exuded are capable of being re-absorbed into the system, constituting resolution. We have formerly pointed out (see Contribution No. 3,) how the effete matter thus introduced into the blood produces in it that increased amount of

Fig. 6.



Two vessels coated, with granules, nuclei, and compound granular corpuscles, from a softening of the spinal cord.

fibrine, which Andral and Gavarret were the first to show accompanied true inflammations. From the blood it is again separated by the glands in various forms, constituting those critical discharges and sediments which accurate observers, since the days of Hippocrates, have been in the habit of considering signs of the disappearance of disease.

It frequently happens that the whole exudation is not thus got rid of. Part of it undergoes transformations, whereby it is changed and formed into permanent tissue. This second mode, in which the exudation is developed, we shall next proceed to consider.

(To be continued.)

Part Second.

REVIEWS.

1. *Animal Chemistry, with reference to the Physiology and Pathology of Man.* By Dr J. FRANZ SIMON. Translated and edited by GEORGE E. DAY, M.A. and L.M., Cantab.; Licentiate of the Royal College of Physicians. 2 vols. 8vo. London: 1845-6. Printed for the Sydenham Society.

2. *Dr Day's Reports on the Progress of Animal Chemistry. In Ranking's Half Yearly Abstract of the Medical Sciences.* 1845-6.

3. *On the Analysis of the Blood and Urine in Health and Disease; and on the Treatment of Urinary Diseases.* By G. OWEN REES, M.D., F.R.S., F.G.S., &c. Second Edition. London: 1845.

4. *A Practical Manual, containing a description of the General, Chemical, and Microscopical Characters of the Blood and Secretions of the Human Body.* By JOHN WILLIAM GRIFFITH, M.D., F.L.S., London: 1846.

5. *The article "BLOOD," in COPLAND'S Dictionary of Practical Medicine.* Vol. 1. London: 1844.

ANIMAL CHEMISTRY is a branch of science, in the progress of which medical practitioners must feel deeply interested. It is true that every professional man cannot be expected to cultivate it practically, but the results arrived at, as they tend to influence his notions concerning the nature and treatment of disease, demand his most careful attention. We cannot remain silent on a subject so truly important, and therefore propose, in the present article, to

present our readers with a concise sketch of the present state of chemistry in its relations to physiology and pathology.

The English version of Dr Simon's work which has appeared under the auspices of the Sydenham Society, is far from being a mere translation of the "Physiologische und Pathologische Anthro-pochemie," published in 1842. Dr Day has written an introduction, extending over eighty-six pages, "with the view of facilitating the perusal of the work to those who have not paid much attention to the recent progress of organic chemistry," and has incorporated a large amount of additional matter. In point of fact, several of the chapters in the second volume are almost entirely from the pen of the editor.

Dr Day has divided the "Animal Chemistry" into an introduction, thirteen chapters, and two appendices.

The introduction embraces the consideration of the proximate constituents of the animal body and of the secretions. The first chapter is devoted to "the proximate analysis of compound animal substances;" the second, extending over 260 pages, to the blood, lymph, and chyle; the third, to the secretions of the chylo-poietic viscera and the theory of digestion; the fourth, to the milk; the fifth and sixth, to the secretions of mucous membranes and of the external skin; the seventh, extending over 240 pages, to the urine; the eighth, to the secretion of the lachrymal, Meibomian, and ceruminous glands; the ninth, to the secretions and fluids of the generative organs; the tenth, to the intestinal excretions; the eleventh, to the component parts of the animal body; the twelfth, to solid morbid products; and the thirteenth, to the fluid products of disease. The first appendix contains the results of the analyses on which the formulæ representing the ultimate composition of the proximate elements of the body and of the secretions, are based; and the second includes the additions to animal chemistry made during the period the work was going through the press.

This work, together with Dr Day's reports, will form the ground-work of the present article.

The introduction to, and first chapter of Simon, are devoted to the consideration of preliminary matter relating, for the most part, to the detection of the various substances occurring in the solids and fluids of the animal body. They contain much important information for all who intend to take up animal chemistry practically; but, as we must confine ourselves in this article more to results than to modes of analysis, we must refer those interested in the subject to the work itself, and proceed without further comment to the consideration of

THE BLOOD.—The average *specific gravity* of human blood has been fixed at 1055 according to Nasse, and at 1056 according to

Zimmermann. The blood of man is always thicker, and at least, a thousandth heavier than that of woman; in a state of health it is always above 1053 in man, while in woman it is frequently not above 1050. Robust men will not unfrequently yield blood of specific gravity 1058 or even 1059, while in pregnant women the specific gravity is sometimes as low as 1045. In very young infants the blood is thin and of low specific gravity.

The *temperature* of the blood, as it issues from the aorta, has been observed by Simon in the ox and pig. In the former it was 103° F., and in the latter 99°. 5 F.

Passing over the microscopical and general chemical relations of the blood, as subjects with which most of our readers must be tolerably familiar, we arrive at the section "on the chemical physiology of the blood." This section includes the consideration of "the formation of the blood," "the process of respiration," "animal heat," and "the metamorphosis of the blood." The last subject is considered under two heads, namely—the *metamorphosis of the blood in the nutrition of the organism*, and the *active metamorphosis of the blood*. In relation to these metamorphoses we meet with the following observations:—

"Regarding the blood physically, as composed of corpuscles and plasma, it is only from the latter that the organs can directly obtain nourishment. The plasma is, however, a very complicated fluid; its principal constituents are albumen, fibrin, fatty compounds, salts, extractive matters, and a peculiar colouring matter, hæmaphæin. The question now arises, Are all these constituents, or only some of them, employed in nutrition? Our analyses of urine, sweat, and mucus, show that these secretions and excretions carry off, in addition to certain peculiar matters, the same pigment, the same salts, and the same (or similar) extractive matters, as are contained in the plasma; hence we may infer that those substances which are removed from the body are effete products of the metamorphosis, and that they are not suited for nutriment, at any rate in the form in which they occur. Neither albumen, fibrin, nor fat is found in urine, sweat, or mucus, and the presence of either albumen or fat is always regarded as a symptom of a morbid state. This fact tends to support the opinion, that albumen, fibrin, and fat are the substances which are employed in the nutrition of the peripheral system.

"The blood, in its passage through the capillary network, permeates all organs and tissues; and their cells take up from the plasma those substances which they require for nutrition, and restore to it those which have become effete, and are no longer adapted for the process of nutrition. We may conclude that the act of nutrition is effected by the sole influence of a power inherent in the cells, and that the plasma is entirely passive. If the different tissues of the animal body, different as they are in their chemical composition, obtain their nourishment from the protein, and fat-compounds of the plasma (which contains the elements of the cells, but not the different cellular substances themselves), it is clear that the cells and tissues must produce a metamorphic effect on that portion of the nutriment which is homologous with themselves. Their catalytic, or, as Schwann in his Theory of Cells terms it, their metabolic power, evolves from the plasma the materials that serve for the nutrition of the cells. * * * But although the plasma acts only passively in this nutritive process, we cannot deny it a peculiar vital power. This is first manifested in the formation of the cyto-blastema, for the force that creates these forms cannot be regarded as independent of the plasma. If the nucleus

is formed by the solidification of fibrin in the plasma, which, from the similarity of their constitution, is probable, its formation must be regarded as the result of a purely plastic force in the liquor sanguinis."—Vol. i. pp. 147-8.

The most important constituents of the secretions and excretions separated from the blood are urea, uric acid, bilin, hæmaphæin, biliphæin, extractive matters, lactic acid, and salts. The three first, according to Simon, are not formed during the metamorphosis of the plasma in connexion with the process of nutrition, but are products of the active metamorphosis of the blood-corpuscles.

"It is but reasonable," he observes, "to infer, that such substances as urea, uric acid, and bilin, which are separated in large quantities by the kidneys and liver from the blood, should be products of the metamorphosis of a substance of an invariably uniform composition. In every class of animals, in the most varied forms of existence, under the most opposite kinds of food, we find that the bile is a secretion of the liver; whilst amongst all the higher classes of animals, and many of the lower, urea and uric acid, or one of the two, occur as a constant secretion of the kidney. It seems opposed to all reason to imagine, that in animals as different in structure as they are opposite in their habits of life, and under every possible variation of circumstances, these fixed and definite compounds should be products of the metamorphosis of the plasma during the nutrition of every form of tissue. It is, however, easy to conceive that the corpuscles, which, although different in their form, are similar, if not identical, in their chemical constitution, in the blood of all these animals, should, under similar conditions, yield similar products as the result of their metamorphosis, and that these products should take the form of urea, uric acid, and bilin. * * * If the urea, uric acid, and bilin were formed in accordance with the other hypothesis, their production would be increased, diminished, or stopped, according as nutrition was proceeding favourably, was deficient, or was entirely checked, as happens in certain disorders. But it is well known that the production of these substances is by no means dependent on such circumstances. The secretion of urea, uric acid, and bilin proceeds, both in man and animals, when the tissues are gradually wasting from disease, and when their nutrition is utterly suspended; they are separated long after the body has ceased to take any food whatever; in fact, as long as respiration, and even life itself remains,—the only necessary condition being the healthy state of the secreting organs."—Vol. i. pp. 160, 161.

There still remain for our consideration the extractive matters, the lactic acid of the urine, and the salts. All these substances occur in no inconsiderable quantity in the blood, and their formation during the act of nutrition of the various tissues, is consequently very probable. With regard to the last—the salts—Simon observes that some are peculiar to the plasma of the blood, "and are transmitted from thence into the secretions and excretions, while others (especially the phosphates of lime and magnesia, fluoride of calcium, together with small quantities of the sulphates and carbonates of soda and lime) occur in the bones as actual constituents of the body. The latter are conveyed into the body with the food, partly in the state of phosphates, &c., while their formation is also in part due to the production of phosphoric and sulphuric acids, by oxidation of the phosphorus and sulphur which occur in the proteine-compounds, and the subsequent combination of those acids with bases. These salts are again found in the urine, for they are

removed by the blood during the metamorphosis of the bones, and are excreted by the kidneys."—Vol. i. p. 151.

The *chemistry of healthy blood* is still in a very unsatisfactory condition. The following experiments of Enderlin seem to disprove the existence of the lactate, oleate, margarate, and albuminate of soda, and of the carbonates of lime, magnesia, and soda, in the blood;—all of which are given by Simon in his list of the constituents of that fluid. His experiments were instituted on the recently incinerated blood. He sums up in the following terms:—

1. The ash does not effervesce on the addition of an acid.

2. Hot water poured on the ash becomes alkaline: it holds in solution alkaline phosphates and sulphates, chloride of sodium, and sometimes chloride of potassium, but no other salts.

a. On the addition of a neutral solution of nitrate of silver to this fluid, there is a yellow precipitate which is partly soluble in nitric acid; a portion, however, consisting of chloride of silver, remaining undissolved. The addition of nitric acid causes no effervescence. On neutralising the acid filtrate with ammonia, a yellow precipitate of tribasic phosphate of silver ($3 \text{ Ag O}, \text{P O}_5$) is thrown down.

b. On treating the aqueous solution of the ash with a solution of chloride of calcium, there is a copious gelatinous precipitate of phosphate of lime ($3 \text{ Ca O}, \text{P O}_5$) which dissolves in nitric acid without effervescence. On treating this acid solution with nitrate of silver, and neutralising with ammonia, the tribasic phosphate is precipitated as before. The addition of the chloride of calcium neutralises the previously alkaline fluid.

From (1) we see that the alkaline reaction is not due to the presence of alkaline carbonates; and (2) shows it is not dependent on the presence of free potash or soda, for otherwise the fluid would not be neutralized by the chloride of calcium. Hence the albumen of the blood cannot exist as a soda-compound (albuminate of soda); neither can there be alkaline lactates, acetates, nor fatty-acid salts in that fluid; and, on the above grounds, Enderlin conceives that we are justified in assuming that the alkaline reaction of the ash is dependent on the presence of tribasic phosphate of soda ($3 \text{ Na O}, \text{P O}_5$), and as this is the only salt that remains tribasic at a red heat, he concludes that the alkalinity of the blood, as well as of the ash, is dependent on it.

The question regarding the actual salts occurring in the blood, and in its ash, must, however, be still regarded as an open one.

There are certain substances occurring only in very minute quantities, or in certain diseased states; the most important of these are *urea*, *sugar*, and certain constituents of the *bile*, namely, *choleate of soda*, and *biliphaein*.

Marchand got only slight microscopic indications of urea from twenty pounds of the serum of the blood of a healthy cow, and as the urine of that animal contains a larger proportion of urea than that of man, the blood must also contain a larger amount of that ingre-

dient. He calculates (assuming that there are twenty pounds of blood in a man's body, and that one ounce and a half of urea is eliminated in twenty-four hours), that the blood contains only the 15,360th part of its weight of urea, a quantity that could hardly be determined analytically if it were increased thirtyfold.

There are, however, diseased conditions in which it occurs in so large a proportion that its detection is accomplished with comparative ease. The following is Simon's method in looking for urea—

"I treat a certain quantity of the blood with alcohol, for the purpose of throwing down the protein-compounds; then filter; and subsequently wash the residue upon the filter with the alcohol. The alcoholic solution (including the washings of the filter) must be evaporated to a small residue, and treated with anhydrous alcohol. The process must, if necessary, be repeated until the residue is freely soluble in this menstruum. The alcohol must then be evaporated, and the residue dissolved in water, which usually becomes slightly turbid in consequence of the separation of traces of fat. This fat is not easily separated by filtration; if, however, this process is determined upon, a considerable quantity of water is added; it is heated, and allowed to stand for some time. The watery solution will then pass through the filter tolerably clear, but slowly. It must be evaporated to a small residue, thoroughly cooled, and nitric acid then added. If the quantity of urea is not too minute, there are formed almost instantaneously an immense number of glittering crystalline scales. If the quantity of urea is *very minute*, the crystallized nitrate of urea may not be perceptible for several hours, and even then probably not without the aid of the microscope."—Vol. i. pp. 183, 184.

On treating the extractive matter of blood containing no urea with nitric acid, we may be deceived by the appearances presented by nitrate of soda. The crystals of this salt present a remarkable degree of thickness, and may be distinguished from the nearly similar form of nitrate of urea, by the circumstance that the former are not at all soluble in anhydrous alcohol, while the latter are readily dissolved in it.

Simon once detected *sugar* in the blood of a calf; it is, however, very seldom to be found in healthy blood, although in certain pathological conditions, especially in diabetes mellitus it may be often discovered without any great difficulty. The best test for its detection is that of Trommer. "The proteine-compounds are first precipitated with anhydrous alcohol, and dry carbonate of potash is then added to the filtered spiritous solution, which must be well shaken. On the addition of a little solution of sulphate of copper, and the application of heat, we observe, if sugar be present, a yellow or yellowish brown tint developed, produced by the reduction of the copper to a state of sub-oxide."—Vol. i. p. 187.

Simon never succeeded in detecting *bilin* in the blood, nor was Lehmann more successful. Dr Day mentions, in a note to page 188, that it has been detected by Enderlin on three occasions in the blood of calves and oxen; these are, as far as we are aware, the only cases on record.

Biliphæin, the colouring matter of bile, may be observed in the serum in most cases of jaundice. The addition of nitric acid gives

rise to the development of a green tint, which frequently passes in the course of some hours into a blue or yellow colour.

The healthy Blood in relation to Physiology.—From four analyses of the blood of horses, Simon concludes that “arterial blood contains less solid residue generally than venous blood; it contains less fat, less albumen, less hæmatin, and less extractive matter and salts, than venous blood. The blood-corpuscles of arterial blood contain less colouring matter than those of venous blood.” Four analyses are, however, not by any means sufficient to determine so important a point; and, in fact, a few pages further on, after noticing the results obtained by other chemists, he observes, that “we are led to the conclusion, that there are certain differences in the composition of arterial and venous blood which, however, are not constant, but vary, according to circumstances.” When all the functions of the organism are properly discharged, and when the nutrition exactly corresponds with our actual wants, we may conclude, *à priori*, that “the final result of the changes in the blood during the act of circulation must necessarily be this—there must be a substitution of fresh and proper nutriment, to supply the place of those constituents of the blood, which are being perpetually consumed; for it is obvious that if, in each circulation, the consumption of albumen or hæmatoglobulin exceeded the supply by the merest trace, after a certain period the blood would acquire an abnormal constitution. We know that albumen, fibrine, and salts, are consumed in the nutrition of the peripheral system; if, therefore, the blood receives no fresh supply of these substances, before it arrives in the larger venous trunks, it is clear that the venous blood must be poorer in these substances than the arterial.”

The blood also conveys away from the peripheral system various products formed by the consumption of the tissues; for instance, certain salts, extractive matters, &c., some of which are eliminated by the kidneys, in a state of great dilution, while others are removed by the skin. If the quantity removed exceed the supply, the venous blood will be poorer in extractive matters and salts than the arterial; it will be richer in these substances if the reverse be the case.

“The venous blood will contain more or less water than the arterial, according as the elimination of water by the kidneys, liver, skin, and lungs exceeds, or is less than the quantity supplied by the fluid of nutrition.

“The plasma receives a supply of fibrin from the solution of the blood corpuscles; if the supply exceeds the consumption of this constituent in the peripheral system, the venous blood may become richer in fibrin than the arterial.

“From these observations, we are led to conclude, that there is no necessary variation in the composition of venous and arterial blood.”—Vol. i. p. 199.

From comparative analyses of the blood of the portal and hepatic veins, it appears that the blood-corpuscles are actively engaged in the secretion of the bile, a view which corresponds with, and tends to explain other phenomena connected with this secretion. Moreover, the small amount of colouring matter in the blood of the

hepatic vein leads us to infer, that some of it has been consumed in the formation of the bile,—a view which accounts, with more probability, for the origin of its colour, than the supposition that it is produced from a portion of the plasma. Dr Day confirms Simon's opinion by a quotation from Mulder's "*Versuch einer Allgemeinen Physiologischen Chemie*," in which it is stated, that if the blood-corpuscles undergo a metamorphosis prior to their development into living tissue, the products of the decomposition of the hæmatin may probably be traced in the *biliphæin* of the bile.

Passing over, from want of space, the comparison of the blood of the renal veins with that of the aorta, and the comparison of venous blood with the blood of the capillaries, we proceed to the consideration of the absolute composition of healthy venous blood. Simon speaks feelingly on the difficulties he encountered in his investigations on this subject.

"It is not an easy matter to select individuals, from whose state of health we can infer that the composition of the blood closely approximates to the normal standard, and after the selection is made, it is still harder to convince them of the advantage or necessity of venesection in their own cases."—Vol. i. p. 223.

He secured two suitable cases,—N., a youth, aged 17 years, of sanguineous temperament, nearly full grown, and properly developed; and S., a servant girl, aged 28 years, tall, strong, and vigorous, and of a somewhat phlegmatic temperament. The following are the results of his analyses:—

1000 parts contained—

	N. (Male)	S. (Female.)
Water.....	791·900	798·656
Solid constituents.....	208·100	201·344
Fibrine.....	2·011	2·208
Fat.....	1·978	2·713
Albumen.....	75·590	77·610
Globulin.....	105·165	100·890
Hæmatin.....	7·181	5·237
Extractive matters and salts	14·174	9·950

100 parts of blood-corpuscles contained, in the former case 6·3, and in the latter, 5·2 of hæmatin and hæmaphæin.

Taking these as descriptive of the composition of normal venous blood, we may give its leading features in the following terms:—

"It contains about 20%¹ of solid constituents; not much more than 0·2% of fibrine, and about an equal quantity of fat; the blood-corpuscles considerably exceed the albumen in quantity, and contain about 5 or 6% of colouring matter."—Vol. i. p. 229.

Simon quotes the analyses of Lecanu and Denis; and to these Dr Day has added those of Nasse, and Becquerel and Rodier; and in his Report on Chemistry, in the third volume of Ranking's Half Yearly Abstract, two analyses by Elsner.

The differences in the blood dependent on sex, constitution, temperament, and age, are then discussed.

From the analyses of Becquerel and Rodier, it appears that the

¹ The formula $\frac{\circ}{\circ}$ indicates per centage.

influence of sex is so great, that in order to arrive at any correct conclusions respecting the deviation of morbid blood from the healthy standard, diseased male and female blood must be always contrasted with the respective male and female blood in a state of health. From the mean of the analyses of the blood of eleven men and eight women, it appears that the blood-corpuscles of the former are to those of the latter (in 1000 parts) in the ratio of 141 : 127, while the water in the two cases stands in the ratio of 779 : 791.

These differences are much more marked than those in the analyses of Simon or Elsner.

In the observations on the differences depending on age, we may remark that Becquerel and Rodier found, that after the age of 40 or 50 there is a decided and progressive increase of cholesterin in the blood. This is an important fact in a pathological point of view, in relation to atheroma and certain other morbid products.

Diseased Blood.—Simon gives the following table of the *maxima* and *minima* of the different constituents of specimens of morbid blood, analysed by himself:—

The quantity of Water may vary from 880·0 to 750·0			
“	Solid residue ...	250·0	to 112·0
“	Fibrine ...	9·1	to a trace.
“	Fat ...	4·3	to 0·7
“	Albumen ...	131·0	to 55·1
“	Globulin ...	106·6	to 30·8
“	Hæmatin ...	8·7	to 1·4
“	Hæmatoglobulin ...	115·4	to 31·2
“	Extractive matters and salts ...	16·5	to 7·6

The deviations from the normal standard observed by Andral and Gavarret are even more striking. They are as follows:—

Water.....	from 915·0	to 725·0
Solid residue.....	275·0	to 85·0
Fibrine.....	10·5	to 0·9
Solid residue of serum....	114·0	to 57·0
Blood-corpuscles.....	185·0	to 21·0

From these data it is apparent, that although the proportions of all the constituents are subject in disease, to a certain amount of change, the variations in the amount of the fibrine and globulin are the most striking.

Effects of Venesection on the Blood.—Becquerel and Rodier have laid it down as a general law, that bleeding exerts a remarkable influence on the composition of the blood, the greater, the oftener the bleeding is repeated. They examined the blood of 10 patients who were bled twice, and 10 thrice; so that, for the purpose of comparison, they had 20 first, 20 second, and 10 third bleedings. The most obvious effects of venesection are the increase of the water and the diminution of the blood-corpuscles. The albumen and fibrine appear to be unaffected. We extract the following

numbers from their table of the mean composition of the blood of ten persons bled three times.

Water.....	793·0	807·7	833·1
Fibrine.....	3·5	3·8	3·4
Albumen.....	65·0	63·7	64·6
Blood-corpuscles...	129·2	116·3	99·2

Classification of Diseased Blood.—Simon arranges diseased blood under four forms :—

1. *Hyperinosis*—in which the blood contains more fibrine and fat than in the normal state, and the corpuscles decrease in proportion to the excess of fibrine.

This form is met with in inflammatory affections generally, and is perhaps best marked in pneumonia and acute rheumatism. We extract Simon's observations on the blood in the former of these diseases :—

"The blood usually exhibits the characters of hyperinosis more decidedly in pneumonia than in most other inflammatory diseases; it also retains its heat for a longer period. The clot is rather below the ordinary size, very consistent, and does not break down for a considerable time. It admits of being sliced, and the sections retain their consistency for some time. Its surface is covered with the buffy coat and is more or less cupped. The serum is of a pure yellow colour. The quantity of solid constituents is usually less than in healthy blood.

"The maximum of fibrin in my analyses was 9·15, which is the largest quantity that I have ever discovered in inflamed blood. The minimum was 3·4, and the mean of four analyses was 6·0. Andral and Gavarett found the maximum of fibrin to be 10·5; the minimum 4; and the mean to fluctuate between 7 and 8. They never met with more than 10·5 of fibrin in the whole course of their analyses. The maximum of hæmatoglobulin occurring in my researches was 78, and the minimum 36, which is very far below the amount in healthy blood. Andral and Gavarett differ from me considerably on this point. They make the maximum of the blood corpuscles 137, and the minimum 83·7. We find, however, in the course of 58 analyses made by them, on the blood of 21 persons labouring under pneumonia, that the amount of corpuscles just reached the normal proportion in 5 cases, in 6 cases exceeded it, and in the 47 remaining cases, fell below it. The average of these cases was 113, which is 14 below the normal quantity in healthy blood, according to Lecanu's analysis. The maximum of fat in my analyses was 4·3, and the minimum (in a man aged 60 years) was 0·7. The maximum of solid residue was 202; the minimum was 160. In 51 out of the 58 analyses made by Andral and Gavarett, the solid constituents exceeded the ordinary normal proportions.

"In all these cases the quantity of the blood corpuscles was very high: the fibrin, in two cases, reached 9·1, and in one case, 9·0: in the others it was low, or amounted to only the mean in the fibrin in pneumonia.

"The two highest amounts of solid residue, found by Andral and Gavarett, were 230, and 227; in these cases the maxima of corpuscles also occurred. The smallest amount of solid residue was 166, which corresponded with the minimum of blood corpuscles. The mean quantity of solid residue, as deduced from these 58 analyses, was 201, or 9 less than Lecanu's average for healthy blood."—Vol. i. pp. 258-60.

Trusting that the above quotation will afford our readers a clear idea of the grand character of hyperinosis, we proceed to the consideration of the second form.

2. *Hypinosis*, of which the following are the chemical characters:—

“The quantity of fibrin is frequently less than in healthy blood, or if it amounts to the normal quantity, its proportion to the blood corpuscles is less than is found in a state of health, (2·1 : 110, *Simon*, or 3 : 110 *Lecanu*) ; the quantity of corpuscles is either absolutely increased, or their proportion to the fibrin is larger than in healthy blood : the quantity of solid constituents is also frequently larger than in the normal fluid.”

In cases of hypinosis the clot is soft and diffuent, and occasionally no clot is formed. The buffy coat is seldom seen, and when it does occur, it is thin and soft, or forms a gelatinous particoloured deposit on the clot. The serum is sometimes of a deep yellow tinge, from the colouring matter of the bile, or red from blood corpuscles in suspension.

We know less of this than of the former species of blood, because venesection is seldom or ever prescribed in the cases in which it occurs, unless an inflammatory affection be also present.

It exists in cases of abdominal typhus, ordinary continued and intermittent fever, the exanthemata, and cerebral hemorrhage.

3. *Spanæmia* is Simon's third form of diseased blood. The following are its chemical characters:—“The amount of fibrin and of corpuscles is diminished : the amount of residue of serum is either normal, or diminished : the proportion of water is higher than in healthy blood : the amount of salts in the serum is sometimes normal, sometimes diminished.”

It occurs in anæmia, cancer of the chylopoietic viscera, scrofula, chlorosis, scurvy, purpura, and putrid fevers. Simon gives an analysis of the blood in chlorosis, and appends a second analysis, after the patient had taken chalybeates for seven weeks. The girl was 19 years of age, and exhibited all the symptoms of unmixed, long-standing chlorosis.

	1.	2.
Water,.....	871·500	806·500
Solid Constituents,.....	128·500	193·500
Fibrin,.....	2·080	1·200
Fat,.....	2·530	2·299
Albumen,.....	79·820	81·230
Globulin,.....	30·860	90·810
Hæmatin,.....	1·431	4·598
Extractive Matters & Salts,	11·000	9·580

This change in the composition of the blood affords an excellent illustration of the good effects of ferruginous medicines in these cases. The amount of solid constituents is increased by nearly one-half, while the hæmatoglobulin is actually trebled. Simon observes, that the changes in the condition of the patient kept pace with those of the blood. Before, she was pale, and her lips colourless ; now, she presented a really blooming appearance.

We suspect that these are the analyses incorrectly assigned by Dr G. O. Rees to Dr Vetter (On the Analysis of the Blood and Urine, p. 199.)

4. *Heterochymeosis*, Simon's fourth form, is altogether an artifi-

cial class. It includes those states of the blood, in which a substance is present that does not exist in the normal fluid: when, for instance, the blood contains urea (in appreciable quantity), sugar, colouring matter of the bile, pus, &c. We doubt the propriety of retaining this class, seeing that all the diseases it embraces might very well be arranged under one or other of the preceding forms.

Under this head, Simon places:—

1. *Blood containing urea: uræmia*, occurring in Bright's disease and in cholera.
2. *Blood containing sugar: melitæmia*, occurring in diabetes.
3. *Blood containing bile-pigment: cholæmia*, occurring in icterus.
4. *Blood containing free fat: piarhæmia*, occasionally noticed in diabetes, hepatitis, dropsy, &c.
5. *Blood containing pus: pyohæmia*, occurring, according to Gulliver, in all diseases in which there is suppuration, or even inflammatory swelling accompanied with hectic fever.
6. *Blood containing animalcules.*

With respect to uræmia, we may observe that L'Heretier once discovered a considerable amount of urea in the blood, in a case of gout. (*Traité de Chimie Patholog.*, p. 266.)

Piarhæmia, we are inclined to suspect, depends in a great measure on the nature of the food and the space that has elapsed between meal-time and the performance of venesection. In Dr Day's report, in the 2d volume of Ranking's Half-yearly Abstract, the reader will find an account of Dr Buchanan's experiments on the effect of food on the blood, which throw considerable light on the subject.

In relation to pyohæmia, we may also mention that the best method of detecting pus in the blood is given in Dr Day's third report.

The blood during pregnancy, menstrual blood, the lochial discharge, and the blood of the lower animals, are next discussed. These subjects extend over about fifteen pages, and are almost entirely contributed by the editor. The volume terminates with the consideration of the lymph and chyle.

The third chapter—the first of the second volume—treats of "the secretions of the chylopoietic viscera, and the theory of digestion." It embraces the consideration of the saliva, pancreatic fluid, bile, and gastric juice.

(*To be continued.*)

Practical Observations and Suggestions in Medicine, Second Series.

By MARSHALL HALL, M.D., F.R.S.L. and E., &c. 12mo, pp. 360. London, 1846.

DR MARSHALL HALL, all the medical world knows, is a man of genius, and it is now almost as well known that he has no small

share of the common waywardness of genius. To medicine in his time he has done good service. In his earlier days he distinguished himself by a pains-taking industry, devoted to the improvement of the portraiture of diseases—and it is not impossible, that even the eccentricities and defiance of established forms, so conspicuous in his more recent works, may have been of themselves influential in awakening all ranks of the profession, to the great and real importance of those views of nervous acts in health and disease, which he claims as his own, and which he so perseveringly inculcates. Hall's views of reflex action in the nervous system, have their rudimentary form in the opinions maintained in the last century by Whytt and Prochaska, yet what influence had these, twenty-five years ago, with the bulk of the profession over their notions of the phenomena of health and disease? The opinions of these two distinguished physiologists were not unknown—they were taught by a few, and sometimes obtained the commendations of the periodical press as ingenious, and applicable to the more intelligible explanation of many acts of the living body. But as regarded the prevailing opinions of the day, they were almost a dead letter. If they were making any progress at all, it was slow and imperceptible. Suddenly Dr Hall perceives the subject in a new light, lays down a law of nervous action, and devises a nomenclature to express the phenomena which fall under it—with the enthusiasm which belongs to genius, he pours fact upon fact on the awakened ears of the medical world, extorting their assent as much by his importunity as by his proofs—book after book he sends forth, the nucleus of each being the reflex action of the nervous system; his new discovery he hangs on every part of medicine, careless of repeating himself in these successive works, provided he find another channel by which to attract fresh auditors. And thus, as we feel inclined to believe, he has succeeded in what he otherwise might have failed, namely, in fixing universal attention on a mode of investigating the laws of nervous action to which for more than sixty years Prochaska, Whytt, and their few followers, had been striving to attract assent in vain. Thus, Hall's penetration and enthusiasm have quickened the slow progress, to which this part of practical physiology would otherwise most probably have been condemned, and thrown us forward to a point which, but for him, might not have been attained for many years. What though his method of prosecuting and propagating his discovery be not conducive to the perfect exactness which physiological and pathological inquiries demand, he has stirred the curiosity of the medical public on this subject, and aroused a spirit of inquiry among men accustomed to the sober examination of such questions—of whom there is no want in this age—so that in no long time the science of medicine must give to him the credit of originating a large additional amount of knowledge on the laws which regulate the acts of the nervous system. To the writings of such a man we feel disinclined to apply the common standards of criti-

cism. The medical press, forgetting his peculiar character and merits, has too often treated his deviations from ordinary rules very much like those of a common offender. We could easily tolerate the vagaries of a new Marshall Hall, who should lay open to us such another field of investigation in the economy of the living body—we wish we saw a coming host of them. The good they would do would live after them, and their errors would lie altogether on the surface, to be seen at the first glance. They would form a class of writers apart, whom critics would be compelled to respect. Their writings, like those of our author, would be a kind of autobiography of their minds, and would furnish a new chapter in psychology.

The work before us, like all our author's recent works, abounds in illustrations of reflex action, and may be regarded as, in the main, a new commentary on that subject. The titles of the chapters will show our readers how miscellaneous are its contents. These are, "Introductory Observations;" "Instances of the Relation of Physiology to Practice;" "Extract from a Lecture on the Nervous System, delivered at St Thomas's Hospital;" "A succinct View of the Nervous System;" "On the Influence of Emotion;" "On the Influence of Sleep;" "On the Influence of the Mind on the Body;" "Galvanism as a Test of the Irritability of the Muscular Fibre;" "On a certain Form of Paralysis in Children;" "Idea of Physiology; Mind, Nerve, Blood, Muscle;" "The Dura Mater excitator; Diagnosis of Diseases of the Brain;" "The complex Nature of an Act of Volition;" "The Condition of the Hemiplegic Hand;" "On the Nature of Inflammation;" "On the Spring Bed;" "The Musquito-net," &c.

In our quotations from this volume we propose to confine ourselves to some of the practical or alleged practical observations contained in it, though these are fewer than its title would lead us to expect. The first we meet with is on the spring-bed, which he strongly recommends to the profession, as in common use on the Continent, and preferable to the water-bed.

Our author next extols the mosquito-net, employed in warm climates, as a most effective defence from the night cold of this climate.

Speaking of the treatment of affections of the head in the puerperal state, he says—

"But I would particularly observe, that a state of exhaustion, from loss of blood generally from the system, does not protect the brain from a state of vascular fullness. This I consider to be abundantly proved in the excellent paper of Dr Kellie, in the *Medico-Chirurgical Transactions* of Edinburgh, and by the fact of the occurrence of convulsions, and even of apoplexy, in this state of exhaustion. It is in this very case that cupping of the occiput and nucha is so strongly to be recommended. The brain, in some cases of exhaustion, is relieved by the topical abstraction of a very small quantity of blood; and this relief is not only obtained by a less expenditure of blood, but is more permanent than similar relief effected by general blood-letting."—P. 116.

Again, under the subject of inflammations following parturition, he says—

“The effects of intestinal irritation, and of loss of blood, are indeed, as I shall proceed to show, apt to produce symptoms of increased action resembling those of inflammatory disease, and prompting the use of evacuant remedies. This proceeding is attended by two sources of error: in the first place, the symptoms are frequently relieved in the first instance—a state of faintishness taking place of that of reaction, and the physician is apt to judge that the remedy had relieved, but was used in too mild a degree to subdue the disease, and is thence led to a repetition of the measure; in the second place, after the first and second moderate use of the lancet, for instance, the reaction returns in a still more violent degree than before, and it is then imagined that the disease, though relieved, was not only not subdued, but had been suffered to make fearful progress; the lancet is therefore again used, until it may be that the powers of the system yield, and sinking takes place of reaction, or, if the last blood-letting be considerable, the scene may be closed by a sudden and unexpected dissolution. I published several sad instances of this kind in a former little work upon this subject.”—Pp. 118, 119.

Our author enters at some length on the treatment of puerperal peritonitis, but for his observations on this subject we must refer to the work itself. We must also pass by his chapter on puerperal stomachal and intestinal irritation, which does not admit of being condensed.

Speaking of the principles of treatment in cases of the effects of the loss of blood in the puerperal state, he remarks that this state of exhaustion, either with or without reaction, does not preclude the possibility of congestion within the head, and for the purpose of subduing it, he recommends the abstraction of a small quantity of blood from the nape of the neck, by cupping, or from the temporal artery, unless in the most extreme cases, in which the loss of even a very small quantity of blood might exhaust the remaining strength of the patient. On this point we would suggest, as a caution, that some of the symptoms of enfeebled circulation within the head are not unlike those of congestion. In the state of exhaustion under consideration, he particularly insists on attention to the state of the bowels, remarking, that if the bowels were free from disorder before the occurrence of loss of blood, this state never fails to induce derangement. His treatment is the daily evacuation of the bowels, by means of a very copious warm water injection, with or without the aid of a draught, containing an ounce of the infusion of senna, and two or three drachms of the compound tincture of rhubarb and of manna. Against the irritability of the system, so apt to occur in exhaustion from loss of blood, he insists on an efficient anodyne, as the tincture of opium, the tincture of hyocyamus, with the spiritus ammoniæ aromaticus, or what he says is preferable, Battley's solution, or the extract of poppy. To this treatment are to be added nourishment, fresh air, quiet, soothing, sleep.

The chapter on the diagnosis of puerperal diseases, contains some interesting observations. One difficulty he dwells upon, namely, the frequent combination of inflammation with intestinal

irritation, or of either or of both with the effects of the loss of blood. In his opinion, authors on the subject of puerperal diseases, have often combined into one description all the several separate cases just referred to. We quote the observation with which the chapter opens:—

“ Our systems of nosology have, I am persuaded, greatly erred, in attempting to separate diseases from each other, and describe them as distinct, when they far more frequently occur in conjunction; so that the mind of the medical student is not at all prepared for the cases which most frequently occur to him when he first enters upon practice. A little experience teaches him the difficulty, nay, the absurdity, of attempting to give each individual case a name, or to put it down in a list of diseases. Each patient, on the contrary, presents to him a new congeries of symptoms, a new complication of diseases or disorders.”—P. 175.

This is a very important observation, very familiar to every man of moderate experience in practice, and yet not always sufficiently attended to in diagnosis. We cannot, however, join Dr Hall in his condemnation of Nosology. For if Nosology give an exact account of affections, which either sometimes occur, or can be easily conceived to occur, uncomplicated, it can be no impediment to our going forward to the knowledge of the complex cases which most usually are seen in practice. On the contrary, the only natural mode of studying complex cases advantageously is, to study, in the first place, the elementary cases out of which they are compounded. Nosology is bad, only when it is behind the actual state of our knowledge of diseases, or when it is studied alone. Its just place in the order of study is, as a preliminary to clinical medicine, the proper business of which is, to initiate the student in the knowledge of diseases as they actually occur in practice.

The chapter on the fatal effects of blood-letting in puerperal affections, being chiefly composed of cases, we cannot condense within our prescribed limits.

The chapter on the general influence of air, exercise, bathing, and clothing, deserves attention. He reprobates, with deserved severity, the too common practice of attempting to harden delicate children by the use of a scanty dress.

The chapter on the plan of observation of diseases of the nervous system is well deserving of attention, but we find it impossible to give a useful condensation of it.

To conclude, there can be no doubt that this work contains a great deal of valuable matter, both immediately available in practice, and also suggestive of improvement, as well in the general science of medicine as in the kind of training by which individuals, each according to the turn of his own mind, must fit themselves for its successful application. It cannot be concealed that it has great faults,—faults, as we have already said, which could not be tolerated except in such a man as Dr Hall. And we must say, woe be to the unhappy wight who, without his already earned reputation, attempts to write books of so rambling a character.

Part Third.

PERISCOPE.

ANATOMY AND PHYSIOLOGY.

ON THE GANGLIONIC CHARACTER OF THE ARACHNOID MEMBRANE OF THE BRAIN AND SPINAL MARROW. BY GEORGE RAINEY, M.R.C.S.

THE Ganglionic character of the Arachnoid Membrane! "What will the microscope do next, we hear some of our anatomical friends exclaim. Certainly, if this paper had not been published under the auspices of the Royal Medico-Chirurgical Society of London, and if we had not seen the names of two histologists, viz. those of Bowman and Sharpey, among the Fellows appointed referees of papers, it would never have been noticed by us. As it is, we feel bound to give it some consideration.

On examining a piece of the arachnoid, taken from the inferior and lateral parts of the medulla oblongata, Mr Rainey observed, at the meeting of two of the chords, situated between the arachnoid and pia mater, a triangular body, of the form and general appearance of a ganglion. He traced a branch going from the chord connected with this body to the arachnoid membrane, along which it ran for a considerable distance, dividing and subdividing in its course, in the manner of a nerve. The other extremity of the chord was ascertained, in subsequent demonstrations, to terminate either on an artery, or on a cerebro-spinal nerve. In the former case it ramifies on the external coats of the vessel, in the same manner as the branches of the solar plexus do on the small arteries supplying the viscera in the abdomen. Sometimes a chord passes from an artery to the arachnoid without dividing, but more frequently it sends off three or four large branches, which ramify upon it. Occasionally one of these branches expands into a large dense plexus, or joins other branches to form one, from which plexus two, three, or more chords pass into the substance of the arachnoid. The shape of these plexuses is either square or triangular, according to the number of branches which join them, and the number they give off. Besides consisting of interlacing fibres, they also contain corpuscular matter. The chords which pass from the vessels of the pia mater, at the upper portion of the brain, to the arachnoid, terminate in the latter by fibres, having a stellate arrangement. The form and size of the gangliform plexuses bear some proportion to the number and size of the vessels in their vicinity; hence they are larger, and of irregular shape at the base, and smaller, and more equally distributed on the upper surface of the brain. When a chord, going from the arachnoid, terminates on a cerebral nerve, it divides in the same manner as on an artery. In some instances this extremity terminates in a sort of membranous expansion, which incloses several nerve tubules.

Mr Rainey states, that these ramifying chords and plexuses can only be cellular tissue, or organic nerve fibres. It is obvious to him that they are intended to perform something more than a mere mechanical office. The principal fact in support of this opinion seems to be, that the filaments of cellular tissue, according to Mandl, do not divide. On the other hand, the divisions and ramifications of the chords, and their connection with plexuses, appear to indicate that they are concerned in the performance of some vital function, the ramifications at one extremity of a chord, being to collect some influence generated in the arachnoid; and the trunk, and the ramifications at the other end, serving to convey and distribute that influence to the parts requiring it, or, in other words, that they perform the function of nerves. With a view of testing the correctness of this conclusion, he examined nerves undoubtedly sympathetic,

and, from the comparison, satisfied himself of their resemblance. He found that, although the characters of the sympathetic are in some branches sufficiently characteristic, in others these fibres resemble so much simple cellular or elastic fibre, as not to be distinguishable from it by any single microscopic character. From their general characters, more especially their form and mode of division, however, as well anatomical as physiological to other parts, he concludes that the arachnoid is as much a source of organic nerves (*nervi vasorum*) as are the plexuses from which filaments go to the vessels of the kidney, or other viscera.

As regards the ganglionic part of this membrane, Mr Rainey has found small roundish corpuscles, about the size of blood discs, in some of the interstices of the plexuses in its cerebral surface; in others, these fibres are covered with irregularly-oval masses of them. On this surface, also, in various situations, there are well defined round or oval bodies, having in their centre a granular nucleus, surrounded by fibrous tissue, intermixed with more or less corpuscular matter. Mr R. cannot decide as to their nature, but he gets rid of the difficulty by the remark that, "at any rate, they look more like small ganglia than anything else I have seen." In the substance of the brain, near the cranial surface, he has found other corpuscles, which resemble the section of a urinary calculus, appearing like it, to be made up of concentric layers. Viewed by reflected light, these bodies seem to be vesicular, and filled with fluid, the quantity of which appears to diminish as the number of layers increases. They are most frequently circular in form, yet some are oval. Their diameter varies from 75·000 to 39·800 of an inch. They occur in the arachnoid of almost every subject, and in every part of the membrane. They are generally solitary and sparingly distributed, but sometimes they are in clusters. Similar bodies have been seen by Vogel in the choroid plexuses, and by Harlip in the pia mater.

The well known corpuscles, on the surface of the choroid plexuses, according to Mr Rainey, are not epithelial cells, as is generally supposed. They are ganglionic globules, a discovery he was led to by comparing them with the corpuscles in the gray matter of the brain, and the ganglia of the sympathetic. From their resemblance in structure, he concludes that they are identical in function.

The arachnoid membrane appears to possess a higher state of sensibility, and a more direct and extensive connexion with the cerebro-spinal nerves, than other serous membranes, as shown by an experiment performed by Mr Henry Smith, and related by Dr Marshall Hall, in which, after the removal of the brain from a dog, the arachnoid lying loose at the bottom of the cranium, about the medulla oblongata, was pinched, and convulsions of the face and other parts of the body were instantly produced.—*Med. Times*, Vol. ii. p. 294. The *gray* gelatinous fibres, described by Todd and Bowman, to connect the sympathetic and spinal nerves, are, in the opinion of Mr Rainey, the origins from the spinal ganglia of those portions of the sympathetic nerve which are to be distributed to the extremities, and that they attach themselves to the spinal nerves as being most convenient. They are distributed to parts with them, and hence that obtuse state of sensibility possessed by serous and fibrous membranes—a sensibility, however, so low as only to be made perceptible, and the nervous connexion of these parts with the brain rendered evident, by the pain which is referred to them when they are in a state of disease. It is strange, thinks Mr Rainey, that notwithstanding such physiological proofs of the presence of nerves in these structures, physiologists are so indisposed to admit their existence.—*Medico-Chirurgical Transactions of London*, Volume 29, 1846.

We are told by the author in one part of his paper, that on showing his demonstrations to various anatomists, some pronounced the fibres to be nervous,

and others to be those of areolar tissue. It is much to be regretted that he has not given us the names of these anatomists, because this is a question which can only be decided by individuals profoundly versed in histology. Nothing is easier than to mistake the filaments of cellular and fibrous tissues, for fibres of the sympathetic system of nerves, and nothing is more difficult than to speak with confidence on the character of the latter. The correctness of Mr Rainey's opinion on this point, therefore, can only be determined by a careful examination and repetition of his demonstrations.

With regard to what he conceives to be ganglionic globules, and more especially those covering the choroid plexus, they are in every respect identical with epithelial cells, as seen in many other tissues. They have been recognised as such by every histologist of reputation, and the loose analogies brought forward by Mr Rainey, with a view of supporting an hypothesis, are not likely to induce those acquainted with the structures in question to change their opinion.

ON THE SOUNDS AND MOTIONS OF THE HEART. By A. W. VOLKMANN.

With each revolution of the heart the following movements take place, perhaps in *two*, or at most in *three* periods, and in an invariable order, viz. systole of the auricles; diastole of the ventricles; systole of the ventricles; and diastole of the auricles. The systole of the auricles is simultaneous with the diastole of the ventricles; the blood propelled from the former causing the expansion of the latter: and, were the contraction of the ventricles simultaneous with the dilatation of the auricles, these two *active* and *passive* or *systolic* and *diastolic* motions of the heart would take place in *two* periods; and each passive motion would be simultaneous with each corresponding active motion. It is doubtful, however, whether the dilatation of the auricles and the contraction of the ventricles are simultaneous. The latter do not propel their blood to the auricles directly, but to the arteries; and thus, there appears to be no preliminary mechanical reason why this should of necessity occur. The possibility of such a synchronism seems suspicious, for with the contraction of the ventricles the arteries become dilated; and as these must contract themselves to propel their contents, it must be at a later moment that the empty auricles can receive the blood and be expanded by it. It is possible, however, that the diastole of the auricles may be synchronous, if not with that systole of the ventricles, by means of which they (the auricles) receive their blood, nevertheless with a later one—perhaps the next in succession—still only *two* periods occur.

Vivisections are little calculated to settle the question. The circumstances are abnormal; and the more blood the animal loses, and especially the nearer to death, the longer is the interval between the systole of the ventricles and the succeeding systole of the auricles.

I have measured the intervals or periods during life, and the sounds of the heart are the boundaries of these. The *first* sound, which is synchronous with the pulse, depends, partly at least, on the closure of the ventricular valves, which happens the moment after the ventricles begin to contract and propel the blood against the valves; the sound necessarily taking place after the commencement of the ventricular systole. The *second* sound is produced by the closing of the semilunar valves; and this from mechanical grounds must necessarily occur after the completion of the ventricular systole. The period, therefore, between the *first* and *second* sounds is the same as the duration of the systole of the ventricles. The time the ventricles require for their systole can be measured, in the following manner, by a second-pendulum, the vibration of which can be diminished or increased by means of a moveable weight traversing the bar. The pendulum is to be placed in sight of the auscultator; and is to be lengthened or shortened by an assistant, till its vibration correspond in duration to the period between the *first* and *second* sounds. It is next to be ascertained how many of such vibrations take place in a minute; the duration of the systole being a measurable fraction of the latter. Of the

sufficiency of such measurements we have the following test ; i. e. as the *first* sound is synchronous with the arterial pulse, so the period from one arterial pulsation to another necessarily embraces *two* lesser periods, viz. *a*, the interval between the *first* and *second* sounds ; and *b*, the interval between the *second* and the succeeding *first* sound. Thus, if the duration of the revolution of the heart be represented by the letter *c*.—we have this formula, $a + b = c$.

The next step was to measure the *second interval*, or that from the *second* sound to the succeeding *first* one, by means of the pendulum ; to add the ascertained period to that of the *first interval* ; and compare the sum of these with the duration of the heart's revolution ; for it is extremely probable that each interval is properly defined, if both together are equal to the duration of the latter. On the first trial I found that the sum of the periods, measured experimentally, never differed, from the actual duration of one revolution of the heart, more than $\frac{2}{100}$ ths of a second ; in two observations out of *nine* the difference amounted to $\frac{1}{100}$ th of a second ; and in another they were exactly alike. In *nine* observations, the interval between the *first* and *second* sound, and that between the *second* and next succeeding *first* sound, bore the proportion of 96 to 100. For example, take this observation, N. N. *Æt.* 34 ; pulse 84 in a minute.

Duration of the first interval,	-	-	-	0.3750 seconds.
Duration of the second interval,	-	-	-	0.3798 "
Sum of both intervals,				0.7548 "
Duration of the heart's revolution,	-	-	-	0.7140 "
Faults of observation, shown by the difference of the former sum, and the duration of the heart's revolution,				0.04 "
Relation of the <i>first</i> interval with the <i>second</i> ,	-	-	-	99 : 100

The almost perfect similarity of the two intervals will appear doubtful to many who have observed with attention the sounds of the heart. The *first* sound has the *second* as a necessary sequel ; and after this, a short pause distinctly takes place, whereupon the *two* sounds again appear to follow quickly upon each other. This result is opposed only *apparently* to the pendulum-measurements, and rests on a subjective delusion. The distinguished physiologist, W. Weber, taught me that sounds which follow each other, rhythmically, in similar spaces of time, have apparently different intervals, the *first*, *third*, *fifth* sounds, &c., are louder than the *second*, *fourth*, *sixth*, &c. Thus, whilst the sounds of the heart are *not* equally loud and clear, the ear conceives an irregularity in rhythm, which is either entirely absent, or in any case very slight.

The actions of the heart appear to occupy nearly *two* equal spaces of time, in the following manner :

First interval—Systole of the ventricles, and synchronous diastole of the auricles, which however is not entirely completed. *Second interval*—Completion of the diastole of the auricles, after which synchronous systole of the latter with diastole of the ventricles. The following is the duration of the phenomena.

1. Diastole of the auricles lasts somewhat longer than the half of one revolution of the heart.
2. Systole of the ventricles lasts half the time of a revolution, or, more correctly expressed, as long as the first interval.
3. Systole of the auricles and diastole of the ventricles, last not quite so long as half a revolution.

To the physiologist, this view of the actions of the heart, which must be allowed to be an approximation to the truth, will especially recommend itself ; seeing that the expansion of the auricles, besides occupying the *first* interval, appropriates a small portion of the *second* ; so that the arterial system, which, by the contraction of the ventricles, becomes expanded to the utmost, gains

time to transmit a part of its contents to the auricles before they contract, and become incapable of receiving new blood.

I laid bare the heart of a frog by removal of the sternum, yet without any perceptible loss of blood. Its action was regular, and appeared rhythmical, according to the measurement by the pendulum. Contraction of the auricle and expansion of the ventricle occurred during *one* period; contraction of the ventricle and expansion of the auricle during the *other*: there was not the shortest pause, and both divisions of time were perfectly equal; and thus far observation is in unison with the given explanations. But in the period which I have called the *second*, no expansion or termination of the auricular diastole occurred, to be followed by the contraction of the auricle; the contraction of the latter commenced after complete systole of the ventricle. In the meantime, however, I think I have remarked that the systole of the auricle took place at first very slowly and feebly, then suddenly, with the usual energy of a living heart; so that the commencement of the contraction could only be viewed as a passive collapse of the auricle, owing to the tension of its walls, and the ensuing flaccidity of the ventricle; so that, if I have not deceived myself, what I have said as to the occupation of the *second* interval remains perfectly valid. In the commencement of this period auricular contraction may take place, but if this depend upon a passive collapse of the auricle, it must of necessity be considered a physiological contraction following the diastole without the co-operation of the muscles, whilst, during this period, blood must still continue to flow into the auricle from the veins.—*Zeitschrift für Rationelle Medizin*, 3 Band. 3 Heft.

We cannot agree with the views entertained by Professor Volkmann as to the rhythm of the heart. They are quite at variance with the results of the great series of experiments performed by the different committees of the British Association on this subject, which, together with those by Drs Hope, Williams, and others, are, without doubt, the best on record.

The author sets aside vivisection as of little importance, and yet he brings forward, in support of his own opinion, *one* observation of this sort upon a *frog*! From small animals, and more especially of this class, we agree with him that little advantage is likely to result; and this may even be said of observations made upon the rabbit. But where large animals, as the dog, and especially the ass and horse, as were more particularly the subjects of observation in the experiments alluded to, the same objections do not obtain; and we doubt not, that were the ingenious author to experiment upon such animals instead of upon cold-blooded frogs—to which, moreover, Nature has only thought proper to afford *one* auricle and *one* ventricle—he would probably see reason to alter his views.

We deny that the systole of the auricles is simultaneous with the diastole of the ventricles; for we have seen repeatedly, as well in the dog as in the horse, the systole of the auricles continued, as if by vermicular motion, into the immediately subsequent systole of the ventricles. A large portion of the blood in the ventricles, previous to their systole, issues from the auricles into the former, on the rapid and forcible diastole of the ventricles, which takes place immediately on the termination of their systole, and is indicated by the second sound. The systole of the auricles is very feeble, and is little more than sufficient to give an impulse to the blood already in the ventricles, or by injecting possibly a small quantity of blood into the latter,—by no means sufficient, however, to cause anything like visible dilatation, but which most likely acts as a stimulus to the contraction of the ventricles, by increasing their sense of fulness to the amount required to conduce to their complete or perfect systole.

We do not sympathise with the author's doubts as to the synchronism of the dilatation of the auricles and contraction of the ventricles. All observation seems to prove that the auricles become slowly and gradually filled with blood from the veins during the period immediately subsequent to their systole, and

until their next contraction. There is no reason to suppose that their dilatation is sudden, like that of the ventricles, nor that they wait for the influence of the arterial wave of blood previous to their dilatation, there being ample power in the vessels themselves, together with the influence of the respiratory acts, and the pressure of the atmosphere, for moving the blood, and thus to render it almost a matter of *positive necessity* that they should perform their diastole in the manner mentioned above. We do not deny, however, that the influence of the impulse of the arterial wave of blood, caused by the ventricular systole, and to some extent conveyed through the veins, may find its way to the auricles immediately previous to their contraction, and may be an assistant cause in stimulating them to contract at the proper moment. The author's views on the above points are, however, somewhat obscure, and even contradictory.

After all that has been written, and all the experiments that have been made, it is curious to remark the diversity of opinion that prevails on the duration of the actions of the different portions of the heart. For example, in regard to the duration of the systole of the ventricles, the author agrees with the views of Laennec, Hope, &c., that this occupies *about a half* of the time of *one* revolution of the heart. Mr Bryan (*Lancet*, Jan. 12, 1833) considers that it occupies *less than one-third*, and Dr Williams allows it *two-fifths* of the whole period of the heart's revolution. We cannot, therefore, be too circumspect in our remarks on the author's views on a point so very difficult to determine, and on which further observation seems necessary. In the matter of rhythm, however, he is quite in error, and also in not allowing for a *period of repose*, which, according to what seems to us the best observations, undoubtedly happens to the ventricles after their diastole, and until the period of their subsequent systole. This period has been variously stated at from *one-fourth* to *two-fifths* of the duration of *one* revolution of the heart. During the same period, and *more*, the auricles are slowly and passively filling with blood from the veins, and may, therefore, be also regarded as in a state of repose.

We cannot close our remarks without expressing a favourable opinion of the very ingenious method of measuring the heart's motions described by the author; and which far surpasses that adopted by Mr Bryan, a gentleman who, some years ago, thought he had discovered an *imperfection in the normal mechanism of the heart!* (*Lancet*, v. 24, p. 783.) His mode of measurement consisted in dotting with ink, during auscultation of the heart, a long piece of tape,—which was drawn across a table at a "*pretty uniform velocity*,"—synchronously with each sound of the heart.

MATERIA MEDICA, THERAPEUTICS, &c.

SALTS OF MORPHIA BY THE ENDERMIC METHOD IN NEURALGIA. By DR GATTERE OF Nantes.

In a paper read before the Medical Society of Nantes, Dr Gattere reports four cases of neuralgia, cured by the application of the acetate, or the muriate, or the sulphate of morphia to blistered surfaces. The first was a case of neuralgic pains of the breast, the mamma, and over the shoulder-blade, in a female of 62, left, as often happens, after an attack of shingles. Three blistered surfaces were produced, and about one-third of a grain of the acetate of morphia was added to the application used at each dressing. The cure was rapid, though many means of treatment had been before resorted to in vain. The second case is that of a female tormented with a very painful hemicranium. Three blistered surfaces were made on the forehead and temples, which were dressed eight times with muriate of morphia, the whole quantity used being between three and four grains of the salt. On the first dressing the pain was at once relieved, returning again to be removed at the next dressing, and so finally was subdued.

The only inconvenience was a momentary acute pain at each new application. The third case was that of a female, aged 50, suffering under a sciatica, against which for a month many common remedies had been employed. Blistered surfaces were made in the course of the pain, and dressed twice a-day with about a sixth part of a grain of sulphate of morphia. Relief was obtained from the first, but was temporary, as the pain returned at the end of three hours, though less severe. The quantity of the sulphate was by degrees increased to two-thirds of a grain at each dressing, and the blistered surfaces were successively made downwards from the upper part of the thigh to the heel, where the pain at last had its principal seat. The treatment altogether extended to a month, at the end of which time the cure was complete. The application of the narcotic caused acute pain for ten or fifteen minutes, after which the neuralgic pain subsided.

The fourth case was one of dental and facial neuralgia, which yielded to a like treatment.—See *Journal de Médecine et de Chirurgie Pratiques*, Octobre 1846.

These cases seem faithfully recorded, and deserve the attention of practitioners. Some doubts may arise of the permanency of the cure, owing to the usual periodical character of neuralgia; and further, it is to be regretted that all the cases occurred in females. One thing, however, seems decided, namely, the immediate temporary relief produced. In the use of such applications, some precautions are obviously requisite, in case of idiosyncrosies, as respects the effects of narcotics on the constitution.

OIL OF JUNIPER, IN THE TREATMENT OF SCALD HEAD. By DR SULLY.

The direct application of the oil of the *juniperus communis*, has been already proved to be successful in scrofulous ophthalmia, scabies and eczema. Dr Sully has found besides, that it is efficacious in the most inveterate forms of scald head. His formula is, oil of juniper, one ounce and a half; axunge, two ounces; essence of aniseed, six drops. The oil may also be applied unmixed; but in either case it should be applied freely over the whole affected surface.—See *Journal de Médecine et de Chirurgie Pratiques*, Novembre 1846.

EXTRACT OF BELLADONNA, BY EXTERNAL USE, IN THE CURE OF THE VOMITING OF PREGNANCY. By BRETONNEAU of TOUTS.

M. Bretonneau, has been led by certain theoretical considerations to propose frictions over the epigastrium with an ointment containing extract of belladonna, for the cure of the vomiting of pregnancy. This ointment is composed of one part of extract of belladonna and six parts of axunge. The extract diffused in water, so as to be of the consistence of thick syrup, answers even better. It is remarkable, he says, that the internal use of belladonna has not any such effect, nor can other narcotics by external use be made to produce the same benefit.—See *Jour. de Médecine et de Chirurg. Pratiques*, Nov. 1846.

ON THE SALTS OF IRON AS ANTIPHLOGISTICS.

The ancients employed iron with success in chronic engorgements of the spleen. “Ferrum,” says Tackenius, “ab antiquis celebratum in splenis affectibus, qua et hodie non sine fructu utimur.”—(Hyp. Chym. Præf.) The same practice is followed at present in Italy, not only in this disease, but in all chronic inflammations of the viscera. The soluble salts, such as the sulphate, are employed in doses of from 3 to 18, or 20 grains, daily. This last dose of the sulphate of iron causes the pulse to sink sensibly, like digitalis. It is astonishing to see with what obstinacy physicians maintain that the preparations of iron are tonic and exciting remedies. Nothing is easier than to convince oneself of the contrary. Give, for instance, in a case of acute rheu-

matism, or other inflammatory disease, 20, 40, or 60 grains of sulphate of iron, in six ounces of water, a spoonful every hour, and mark the effect. There is not the least danger.—*Annales de Thérapeutiques*, Decembre 1846.

ON THE RAPID EFFECT OF THE SULPHATE OF QUININE IN DIMINISHING THE VOLUME OF THE SPLEEN IN ANIMALS. By M. PAGES.

M. Pages declares his belief in the sufficiency of the evidence of the immediate power of the preparations of quinine, to diminish the volume of the human spleen, when the inquirer is expert enough in the practice of percussion to ascertain the states of this organ. He then states a case in which he believes, he anticipated the accession of an intermittent fever, from the augmented volume of the spleen, and prevented it by the administration of two fifteen-grain doses of sulphate of quinine at an interval of three hours. Looking to the importance of convincing the medical profession at large, of this effect of the preparations of quinine over the spleen, he was induced to make the experiments on animals now published. Our author's experiments were made on dogs. An incision was made from the umbilicus to the sternum, and another at a right angle from the middle of the first towards the left side, so that the spleen was permitted to escape from the abdomen, and present itself to the view of the experimenters. In the first experiment, fifteen grains of sulphate of quinine dissolved in ten parts of spirit, were injected into the jugular vein,—instantly the spleen began to diminish in volume in all directions, its substance at the same time, becoming somewhat hardened. In the second experiment, also on a dog, the effect was very sensible but less striking, the quinine being in this instance introduced into the stomach, and the volume of the spleen being at its minimum, owing to the stomach being entirely empty. In the same dog more quinine was immediately afterwards introduced into the jugular vein without any very sensible additional effect. In a third dog the solution of quinine was introduced into the jugular vein, and the effect on the volume of the spleen was quite remarkable. In a fourth dog, after the exposure of the spleen, pure water was first injected into the jugular vein without producing any change on the aspect of the organ, though one of its diameters was found to be slightly increased—afterwards diluted spirit was injected into the vein, and this was followed by a slight rugosity of the surface, without any sensible change on the diameters—lastly, the alcoholic solution of quinine was injected into the vein, when the effect on the spleen was immediate, the convex parts of the organ becoming concave, though with no very great diminution in its diameters. In this last dog, which was large, the stomach was full, and the spleen consequently voluminous.—*Gazette Médicale de Paris*, December 12th, 1846.

Such are our author's experiments, and we see no cause to distrust the fidelity of his report. It appears, however, that Magendie had made some trials of the same kind on the effects of sulphate of quinine on the spleen, concluding that it did not affect its volume, while he found that nux vomica had a power over this organ like what M. Pages ascribes to quinine. As Magendie, we believe, has not published those experiments, it is probable that they were imperfect as respects the effect of quinine on the volume of the spleen.

SURGERY.

TIBIO-TARSAL AMPUTATION, PERFORMED IN PARIS BY MM. BLANDIN and JOBERT.

AMPUTATION of the foot only for disease of the tarsus has been lately performed in two other cases at Paris,—one by M. Blandin at the Hotel Dieu, the other by M. Jobert at the Hopital St Louis.

The case at the Hotel Dieu was that of a young man, aged twenty-five years, robust, who had laboured for some time under organic disease of the left foot. The tibio-tarsal articulation, however, was sound, and amputation of the foot was decided on. In performing the operation, M. Blandin made two lateral flaps, instead of one posterior flap, as practised by Professor Syme, or a posterior and an anterior flap, as performed by M. Baudens. He also preserved the malleoli. The sixth day after the operation, the stump was in a very satisfactory state: the two flaps were united before and behind, but in the centre they are separated, to the extent of about four centimetres. Both flaps cover perfectly the malleoli, they are thick, of good appearance, and every thing indicates a rapid and complete cicatrization.

The case at the Hopital St Louis was that of a young female, aged twenty-three years, who for three years had been affected with suppurating sores of the left foot, and necrosis. M. Jobert practised Professor Syme's operation without the slightest difficulty or accident.—*Annales de Thérapeutiques*, Decembre 1846.

In the January number of the same journal we are furnished with the results of these two operations. Both have perfectly succeeded. In the case of M. Jobert, the apex of the flap became gangrenous to a small extent. On the separation of the slough, however, the lost part was rapidly supplied with healthy granulations, and the whole is now almost perfectly cicatrised. The limb is only a few lines shorter than the other, and the stump forms a firm cushion, in every way commodious for walking. In the case of M. Blandin the cure was more rapid, cicatrization was rapid and perfect, but an abscess formed within, above the internal malleolus. At present the stump is every where well covered, except at one point, between the malleoli, which is not yet quite cicatrised. The two malleoli are well covered by soft parts formed of the lateral flaps, their osseous projections are rounded by absorption, and the whole resembles exactly the appearance of the condyloid extremity of an infant.—*Ibid*, Janvier 1846.

We feel great satisfaction in seeing this useful operation extending to the large hospitals of Paris. Instead of trying various modifications, however, it seems to us that it would be better if the same plan which has been so successful in Edinburgh were adopted elsewhere. M. Blandin pointed out that the posterior flap is very thin behind, towards the tendo Achillis, which forms its pedicle, and was likely to slough. The editor of the *Annales de Thérapeutiques* observes, that this fear is well founded, and that the occurrence has often taken place in Mr Syme's practice. This is an error. In the January number of his journal, in endeavouring to show that M. Blandin's operation is preferable to that of MM. Syme and Jobert, he states, "that the formation of a posterior flap has almost always been followed by mortification, even in the hands of its author, Mr Syme." Now the fact is, that Mr Syme has operated eighteen times successfully, and mortification of the flap has only occurred *twice*, and then it originated in the flaps being too long, and from the posterior tibial artery having been cut before the division. M. Blandin is further of opinion, that the excision of the malleoli is unnecessary, and tends to increase the gravity of the operation without any real advantage. He also rejects the practice of sawing off a thin slice of the articular end of the tibia; but if this articular surface be diseased, it *must* be removed, and in our opinion this practice in all cases hastens recovery, and renders the result more perfect. Such, at all events, is the opinion we are led to adopt, not only from the practice of Mr Syme, but from that of the other surgeons of the Royal Infirmary.

We cannot help expressing some surprise at noticing that whilst this operation, which has for its object the preservation of the leg, is becoming known and appreciated in France and Germany, it has made no progress in the hospitals of London and Dublin. Inhalation of ether for the removal of pain has only been known a few weeks, and has been already practised over the

whole kingdom, from whence it would appear that surgeons are more ready to relieve a temporary pain than to preserve a limb. We even observe that on one occasion amputation below the knee was performed in a case of diseased tarsus, during the stupor produced by ether, a proceeding altogether unwarrantable. It would have been better for that individual to have lost the foot and preserved the leg at the expense of a little pain, than to have been deprived of both during a period of insensibility.

ON THE TUMOURS OF THE BREAST WHICH SHOULD BE REMOVED, OR ALLOWED TO REMAIN. By M. VELPEAU.

M. Velpeau divides in a practical point of view all cancers into three classes. 1st. Cancers which ought not to be removed; 2d. Cancers which may be removed; and 3d. Cancers which ought to be removed.

Among the cancers which ought not to be excised, is the *scirrhus cancer*, *disseminated or in grains*. It commences with small tubercles in the skin, in the cellular tissue, or in the breast. This variety is very insidious, for it is evident that the sense of touch cannot discover all the minute tubercles disseminated in the gland. These are the germs which cause a return of the disease after ablation. Another form, the return of which is certain, is the *cancer in laminae, or ligneous cancer*. In this kind we find the skin of horny induration in laminae, the nipple is retracted, the mamma atrophied, the whole mass of a woody consistence. These two kinds ought not to be removed. The same with *encephaloid cancer*, when examination of the viscera shows that the disease is multiple.

The cancers, the removal of which is doubtful, and which may consequently be operated on, are the following. *Melanic cancer* is rarely observed in the breast, and when seen is usually associated with others in different parts of the body. Sometimes, however, only one tumour of this kind is present in the breast, which should be excised, as it does not always return. The same may be said with regard to a *colloid mass*, for its return also, is not constant. *Scirrhus*, when not ramiform, may be removed. *Encephaloid cancer*, when it is isolated, confined to the breast, and does not affect other parts of the body, may be excised with some chance of success. Amongst the number of those he has operated on, M. Velpeau has cured fifteen who were affected with these tumours. It is necessary to observe, however, that the chances of success are feeble, because it is easy to overlook the presence of encephaloma in other parts of the system. They frequently exist in the viscera, where it is often impossible to detect them, and where, consequently, a relapse is certain. M. Velpeau cites the following case:—A man entered the hospital labouring under a small encephaloid mass in the lip. His general health was apparently perfect. He was operated on, and died four days afterwards. On examination, millions of minute encephaloid tumours were found in the liver. These must have existed previous to the operation, as we cannot imagine so much disease to have been formed in four days; yet how can we explain their presence with his previous good health, and why should the excision from the lip have given to them such activity as to cause death? These are pathological phenomena which yet require elucidation.

From what has preceded it will be seen, that of all the varieties of cancer of the breasts, it is only *scirrhus*, properly so called, which, when it is circumscribed and isolated, ought to be removed without hesitation by the surgeon. In fine, M. Velpeau thinks that half the tumours found in the breast ought not to be interfered with. With regard to fibrous tumours, M. Velpeau thinks that they cannot become cancerous, and that in excising them no risk is run of their being reproduced.—*Journal de Médecine et de Chirurgie*, Decembre 1846.

ON INCONTINENCE OF URINE IN YOUNG PERSONS.

Two young persons, affected with nocturnal incontinence of urine, were treated at La Charité, by M. Gerdy, with strychnine internally, the dose being from a quarter to half a grain daily, until it caused muscular twitchings of considerable severity. Small enemata of sulphate of quinine were conjoined with this treatment, and a cure was accomplished. Two months afterwards, one of the patients returned to the hospital with a relapse of the same infirmity. The repetition of the strychnine produced no advantage. Another patient, with the same affection, was treated with the extract of belladonna, three grains daily, but the cure only continued eight days. We must not be in haste therefore to give up the use of remedies, after the cure of incontinence. It is known at present that this affection is connected with a chronic phlogosis of the neck of the bladder, and sometimes of the body of this viscus. The urine is often catarrhal. M. Robert has cured two cases of this kind, by injections into the bladder of a solution of nitrate of silver. The internal use of ergot of rye and camphor (from five to ten grains of each) daily, is also beneficial in these cases, and does not prevent the use of nitrate of silver locally, and frictions of camphor ointment to the perineum and pelvis at night.—*Annales de Thérapeutique*, Septembre 1846.

A lad, aged 14 years, detained at the penitentiary of Bordeaux, affected with the infirmity of passing urine in bed when sleeping, placed a string round the penis, with a view of preventing it. A retention of urine, with very serious symptoms, was the consequence, but the ultimate result was a complete cure of the incontinence. In the same institution five children were permanently cured by causing them to remain standing for three nights. A girl, aged 17, was cured by ergot of rye, and other patients, similarly affected, by sulphate of quinine. Strychnine has been employed occasionally with success when all other means have failed, and the same result has attended the use of cantharides powder, in doses of four grains daily. It is remarkable that these different remedies have sometimes succeeded and sometimes failed, under circumstances much the same, so that it is often necessary to try one after the other in succession.—*Jour. de Médecine de Bordeaux*, March 1846.

EXCISION OF THE MEDIAN NERVE IN VENESECTION.

A French soldier, serving in one of the African regiments, was sent to hospital in the summer of 1841, on account of a gun-shot wound. It was deemed requisite to take blood from his arm, and on the introduction of the lancet a white filament appeared at the opening. After an ineffectual attempt to turn aside this impediment with the lancet, the surgeon took a pair of scissors and snipt it through. Immediately a roller, which the patient held in his hand to promote the flow of blood, fell to the ground, and the arm became powerless and benumbed. Notwithstanding the use of rubefacients, moxas, &c. the arm remained paralysed. Two years after it still remained in the same state, and was atrophied. The reporter of the case concludes that the median nerve was the part divided with the scissors.—*La Clinique de Montpellier and Gazette Médicale de Paris*, Decembre 12, 1846.

EXTRACTION OF A GALL-STONE FROM THE GALL-BLADDER. By ROSSI.

Rossi terms the operation by which a gall-stone is extracted from the gall-bladder "Cystifelleotomy." Such an operation is practicable, only when the distended gall-bladder has reached the inner surface of the abdominal parietes, and has there contracted an adhesion. He cites the case of a lady, 40 years of age, who, after several attacks of pain in the region of the liver, became affected with a swelling in the right iliac region. After various conjectures as to its nature, it was at last opened, when pus first issued, and the presence of a gall-stone was discovered, on the extraction of which the patient was cured.—*ib.*

PATHOLOGY AND PRACTICE OF PHYSIC.

NOTES ON THE ORIENTAL PLAGUE, BY LUDWIG THIRSK, M.D., BRUSSA.—WITH OBSERVATIONS, BY DR C. SIGMUND, Professor of Surgery in the University of Vienna.

These “notes” possess a high interest, as being the result of personal observation, during a twelve years’ residence in Turkish lands. After a few preliminary observations, Dr Thirsk notices the condition of those towns and districts most liable to outbreaks of the plague,—in particular, Trapezunt (Trebizonde), Tripolis, and the many places liable to its ravages on the coast of the Black Sea; Constantinople, Smyrna, and Egypt. He shows them to be the seat of all that is usually considered necessary for the production of malaria, such as ill-drained marshes, stagnant sewerage, and heaps of putrifying filth of all kinds, and remarks that temperature has an undoubted influence on the evolution of this malaria. He states that the plague commences in Trapezunt in June and July, and ends in October and November; in Constantinople in April and May, increases till August, and ends in September; in Smyrna in February, increases till July, and ends about the 16th of August; in Egypt it begins about the end of the year, and ceases about midsummer, although in 1834 it was later, owing no doubt to atmospheric causes, commencing in that year at its usual period of close.

The following is his account of the epidemic of 1839-40, witnessed by him during his residence in Egypt, in the capacity of chief physician to the Turkish fleet. The fleet left Constantinople on the 7th of June 1839. It consisted of 9 ships of the line, 11 frigates, 1 corvette, and 3 brigs, having 17,600 men on board. In consequence of having been dieted during their residence in the Dardanelles, and subsequent 14 days’ voyage, with bad food composed of rancid oil, musty rice, spoiled biscuit, and putrid water, probably also of the overcrowding of the vessels, the sudden change of temperature, and the depressed state of spirits of the crews (mostly young recruits), a formidable epidemic, typhoid diarrhoea, broke out shortly after their arrival, carrying off in August, September, and October, more than 1200 men. The health of the town and Egyptian fleet continued most satisfactory, not a case having occurred during the past year that could have been by the keenest plague-hunter pronounced as such; in the Turkish fleet the mortality, though still considerable, continued to decrease during November and December, and then reached a close. The first case of sickness on shore was signalled in the last days of December; this, after death on the 15th day, was, from the existence of petechiæ and vibices, looked upon as plague. Similar cases overlooked had already occurred, and others soon followed in the most distant quarters of the town, and where positively no communication could be made out. These cases were chiefly recognised after death, as all the symptoms during life, together with the long duration of the disease (16 to 17 days), left their nature doubtful. At the end of January, however, buboes, and in the beginning of February, carbuncles, appeared. In January the cases amounted to 6 or 9 a day, in February they increased to 20 and upwards, and the course of the disease became shorter, namely, 4 or 7 days in duration. This was well marked in March, April, and May, the damp warm months, in which the putrefaction of the animalized waste of so populous a city as Alexandria, and the organic matter left by the subsidence of the Nile, especially favoured the production of the disease in all parts of the town. It appeared amongst the naval workmen, nay, in the fleet itself, in spite of distance and isolation, and especially amongst the Fellahs. The rapidity and fatal course of the disease, and its singular disappearance by the end of June, when the sunbeams became powerful enough to dry the earth thoroughly, and thus annihilate the decomposition of organic matter, appear to justify the opinion of an endemic-epidemic origin of the plague.

Up to the middle of June, when the author left, only 31 cases had occurred on board the fleet, of which 11 men died in their respective vessels of the most virulent form of plague. No ship lost more than three men out of crews of even 1200 to 1300, and many remained quite free. Another remarkable case occurred amongst the men forming Reschid Pacha's guard. A lieutenant fell sick of the plague; recognising it at once, he bled himself, and I hearing of it next morning, applied the remedy after to be mentioned (*ammonia*), by the use of which he was greatly relieved, but died on the fourth day under symptoms of *encephaloragia*, having got drunk on brandy the previous evening. Not one of his company, though in closest contact with him during his illness, fell sick. Dr Thirsk gives several similar cases, and a long series of striking facts, opposed to the idea of its being contagious, which he observed during the epidemic that raged in Turkey during 1836-37. He remarks, did the plague correspond with the theories of contagionists, how could it, once broken out amongst a body of men in such circumstances of equality with respect to food, confine itself to single individuals? how did it not spread, even in the narrow and overfilled hospitals, in the confined atmosphere of the lower hold? All severe cases, it is true, were sent to the land hospital, within at most 24 hours after seizure; still 11 died on board their respective vessels, and consequently, the disease, though short, had passed through all its phases.

The question naturally suggests itself, on the one hand, has faith, the moral conviction of the further innocence of the plague, and the consequent loss of injurious fear, or, on the other, does an extinction of the cause of the disease by meteorologic and telluric influences, produce a termination of the epidemic at certain times, as in June. Dr Thirsk is of opinion that both causes operate. There exists no pathognomonic sign for all cases of commencing plague. The almost entire absence of other acute diseases is suspicious, but the evil is only recognisable by the variety of symptoms forming the existing epidemic. In the first stage of fever, the disease is often unrecognised by the most skilful, till death, or the delayed appearance of the buboes or carbuncles reveals its character. In more advanced epidemics, the acute stitch-like pain in any of the glandular chains, is often simultaneous with the predominant headache, vertigo, nausea, or vomiting. The swelling of the glands is often primary, violent fever may last for hours, or it may be days, generally from 5 to 7. Under some new exacerbation, the dreaded pain and swelling of the glands at length come on, or the still more dreaded carbuncle makes its appearance, as a small yellow vesicle encircled by a livid edge with a dark bluish-red border; this, at the height of the epidemic, is scarce ever wanting, and when glandular swellings accompany it, they have the following relations. When the carbuncle is seated on the face, neck, or superior extremities, the glands of the neck or axilla are respectively affected. When on the abdomen, thigh, or leg, those of the groin or popliteal space become enlarged. The bubo is most frequently seated in the groin, less so in the axillary, still less so in the submaxillary, and most rarely in the popliteal space. In ordinary cases there are two, occasionally one, and sometimes as many as eight on one individual. The number of carbuncles varies from one to four, or in rare and malignant cases to ten or twelve. The most dangerous cases are those commencing with severe affection of the brain, violent unmitigable bilious vomiting, and coma; recovery in such cases is rare, and the course generally rapid, death occurring in from 1 to 3 days.

The plague often ends in a few days by resolution of the buboes, and critical discharges from the skin and bowels, or after an otherwise perfect recovery, the buboes may remain stationary, often suppurating for weeks, frequently accompanied by gangrenous destructions of the part, and a tedious convalescence. When individuals are twice attacked during the same epidemic, the second attack is generally much the slighter, and often terminates by resolution of the buboes. Each virulent epidemic has its cases of fearfully sudden death, known by a peculiar expression of countenance resembling drunkenness or depression,

with the most glaring redness or a deathlike paleness of countenance, eye injected and sparkling, but with an unsteady trembling glance; symptoms readily recognised by the experienced, but difficult to describe. Such cases occur chiefly amongst the lower classes engaged in severe labour. The use of opium, hectic fever, diarrhoea, dysentery, idiocy, or other mental disease, open wounds or issues, protect from the plague.

Each epidemic must be treated rationally, according to its prevailing type. Animal food should be strictly interdicted; a simple soup taken before complete recovery has been followed by a relapse. Much more may, however, be expected from a species of prophylactic treatment commenced with the earliest symptoms, by which the disease may be cut short, or its subsequent course favourably modified. The remedies used with this intention are, the internal use, by the sick person, of his own recently passed urine; the external application of camphor and opium; the muffling the sick in cloths dipped in cold vinegar, and then covering him warmly up. Dr Thirsk recommends instead, the internal use of ammonia as equally efficacious in promoting perspiration, and more pleasant to take, and cites cases of its apparent usefulness both in himself and others. The most celebrated of the plague doctors look upon the disease as curable within the first few hours, by cauterizing the carbuncles in their first stage as yellow vesicles, repeatedly and deeply with a red-hot iron. Speedy perspiration and the sinking of the glandular swellings follow, and signify the end of the disease. The prognosis is favourable when the buboes speedily suppurate, or vanish under critical discharges, with abatement of the fever; if the latter alone takes place, the buboes remaining stationary, relapses may be expected, and their sinking without it, is a deadly symptom. When the carbuncle readily limits itself, is of a round form, and dry, it is a favourable sign. It is the contrary when ichorous, diffuse, sacculated, or indented. The black vomit and coma, after the seventh day, are absolutely fatal symptoms.

His conclusions are, that the plague is an endemic disease, arising probably from a specific nitro-hydrogenous miasm; it has its seat in the blood; its occasional great extension, nay, its disappearance, are caused by unknown atmospheric conditions; it is not contagious, but infectious by concentrated miasm, the infection occurring through the organs of respiration, and working primarily on the brain; the attack is to be avoided by cleanliness, temperate living, and want of fear; there exists no peculiar disposition to it, no age or sex escapes; it may relapse; and though disfigurements may follow the loss of substance caused by gangrenous buboes and carbuncles, and in rare cases speechlessness or stuttering may remain behind, as was observed after the epidemic of 1812, and ascribed to the non-opening of the lingual vein, at that time practised with success,—still it leaves no special disease behind it, and its farther influence on the health, if any, seems to be favourable. Thousands of such as have often suffered, enjoy uninterrupted health even to a green old age; it may attack an individual twice during the same epidemic, and as often as six or seven times in a lifetime; it has no material bearer of its poison; cannot, therefore, be inoculated, as innumerable experiments with the sweat, blood, pus, &c., testify. The formation of the disease is, if possible, to be prevented; once formed, it must be treated on rational principles.

Dr Sigmund, in conclusion, remarks that Dr Thirsk's observations, backed by the opinions of other physicians distinguished for education, character, and experience, justify us in adopting his views. Though a well-regulated system of health police, might do much to check the plague, and prevent its origin and extension, still we must remember, that from the low state of national development in the East, and the different social and religious relations, the strongest, and apparently the best laws, often fall paralytic to the ground. In the meantime, instead of punishing Europe with a string of quarantines, from Gibraltar to Odessa, and from Malta to Galitza, often wretchedly and capriciously managed and arranged, a sanitary cordon ought to be drawn around those provinces in which, from time to time, the plague has broken out,—on

their confines, coasts, or rather, neighbouring isles, and in these travellers should be obliged to spend the time considered necessary by anxious minds. The longer the plagues of this century are studied, the more evident it becomes that a radical reform of the quarantine laws is necessary for the interests of commerce and humanity. The voice of science and of medical police, the communications by railways and steam-boats, ought to push aside this institute of human weakness and prejudice, with the same ease that they have already broken up many other useless barricades of our social system.—*Wochenschrift des K. K. Oesterichischen Staates*, Juli und August 1846.

ON THE PATHOLOGICAL ANATOMY OF PERICHONDritis LARYNGEA. By J. H. JANSEN.

This rare laryngeal affection has been found to follow external injury, to arise idiopathically as a catarrho-rheumatic affection, or more frequently secondarily, along with or after small-pox, typhus, the mercurial cachexia, and secondary syphilis. The author narrates two cases. One a young man, who had been already five weeks under treatment for typhus abdominalis, was seized during convalescence with a laryngeal affection, and died suffocated four days afterwards. The other, an individual aged twenty-four, affected with confluent small-pox, also died suffocated, after suffering eleven days from a similar complaint, which arose during the crusting of the pustules. The morbid appearances found were, an abscess, surrounding on all sides a considerable extent of the posterior portion of the cricoid cartilage; superficial softening and diminished size of the cartilages, along with thickening or serous infiltration in the neighbourhood of the abscess; the mucous membrane was, excepting œdema, normal without a trace of ulceration. Our author, considering that normal cartilage is incapable of inflammation, looks upon this as a true inflammation of the perichondrium, with deposition of the plastic exudation upon the surface next the cartilage; this collects under the perichondrium, separating it from the cartilage, and, passing gradually into pus, forms an abscess, whose walls are formed by the thickened and infiltrated (with serum) cellular tissue. The alterations in the cartilage are produced, 1st, in a mechanical manner; the exudation, by separating it from the perichondrium, putting it beyond the pale of the circulation and consequent nutrition, &c.: 2d, In a chemical manner, by the action of the pus upon the necrosed cartilage; the perforation of the cartilage, and separation of it into several pieces, proceeds not, as *Albers* supposes, from a chondritis, but is a consequence of the different thickness of the cartilage at different points, and of the unequal extension of the inflammation. The extension of the abscess on the external surface of the cartilage cannot be explained by *Cruveilhier's* theory of an inflammation of the submucous cellular tissue, which is also much more readily infiltrated with pus than an abscess formed in it. The cricoid cartilage is most frequently affected; more rarely the thyroid, partially or entirely, alone or in unison with the former; and the disease has been only twice narrated as occurring in the arytenoid perichondrium. Though highly dangerous when following exhausting diseases, as an idiopathic affection or consequence of injury, the prognosis need not be so unfavourable, the swelling and œdema causing the principal danger, viz. death from suffocation, which might be obviated by a timely performance of tracheotomy.—*Holländische Beiträge zu den Anatomischen und Physiologischen Wissenschaften*.

TROPHONEUROSIS.—NEW SPECIES OF FACIAL ATROPHY.

The following remarkable case, taken from the Inaugural Dissertation of Dr Bergson (*De Prosopodysmorphia, sive Nova Atrophia Facialis Specie*), appears to belong to that class of diseases in which the process of nutrition suffers in consequence of diminished nervous influence. Such cases are rare, and dissection alone can reveal their origin. Meantime it is interesting in other respects, and as such we lay it before our readers.

A woman, aged twenty-eight, who, from her mother's account, had always been a healthy child, was, at the age of thirteen, attacked with intermittent fever, of the tertian type, from which, however, she perfectly recovered in seven weeks. Three years afterwards, in consequence of exposure to wet when much heated during a journey on foot, a diffuse eruption of large red spots appeared over the whole body, but more especially in the region of the neck, accompanied with some fever. This continued for three days, and then disappeared. The suspicion that the eruption might have been that of scarlet fever, was strengthened by the fact, that after its disappearance, she still continued to be feverish, suffered from sore throat, and the face became œdematous. On examining the throat, the mucous membrane was found dry, and of a deep red colour. The uvula, left tonsil, and glands of the neck, were also much swollen. After continued poulticing, the left tonsil suppurated and burst, from which time she rapidly recovered, and gained strength and flesh, after being confined to bed for nearly three months. It was remarked, however, that whilst the right side of the face became plump and red, the left side remained shrunk and collapsed. She continued to suffer, moreover, from twinges of pain in the left side of the body, more especially during winter, and stormy or changeable weather.

In the summer of 1842, she was received into hospital, when she exhibited the following appearance. At the very first glance, a marked difference was observable in the two sides of the face. The right side presented the appearance of a young woman, while the left appeared that of an old person. So much, indeed, was this the case, that the latter might have been mistaken for the healthy one, and the former considered as swollen. In short, by drawing a line down the centre of the face, the difference was most apparent; in the one side was the face of age, on the other that of youth. The hair on the left side of the head was also very thin. In order to hide it, the patient was in the habit of combing over it the hair from the right side. The left side of the brow was also less full and convex than that of the right, so that the tuber frontale of the latter was very prominent. On the right side there were some puckerings of the skin. On the left, in consequence of the absence of fat, and subcutaneous cellular tissue, it lay close upon the bone; and hence, the arcus supra-ciliaris was more distinctly felt than on the opposite side. There was little hair on the eyebrow, and the eye-lashes were longer and thinner than those of the right; the caruncula lacrymalis was also smaller and paler. The eye itself appeared sunk in the orbit, but no difference in the convexity of the cornea, from that of the opposite one, could be perceived. The atrophy of the left ala nasi, and dorsum nasi, was very striking; and in consequence of the septum being somewhat inclined towards the left, the nostril itself also appeared smaller. The chin and cheek of the left side were much flatter, softer, and more sunken than those of the right; the left half of the chin, indeed, was almost wanting; it appeared more like an appendage to the right than anything else. The right angle of the mouth, in consequence of the atrophous state of the upper and under lips, was obtuse. The effects of the diminished nutrition were perceptible also in the left side of the neck, as far down as its middle, but from thence no difference was perceptible in the two sides of the body.

On examining the mouth, the gum of the left side was found paler, and the left side of the tongue and uvula thinner and smaller, than those of the right. The left tonsil was altogether wanting; nothing could be seen but a cicatrix, the result, no doubt, of the former ulceration. No difference of temperature could be perceived by the thermometer, either externally or internally.

The sensibility of the nerves of sensation of the skin of the face, of the cavity of the mouth, and of the special senses was entire. The functions of the motor nerves,—the facialis, oculo-motorius, the smaller portion of the fifth, and the hypo-glossus,—were equally energetic on both sides. The

secretion of tears and saliva was as great on the atrophied side, as on the other, and according to the declaration both of the patient and her mother, perspiration was equally free on both sides. The only perceptible difference, in fact, in the two sides, was in the pulsation of the carotids, that of the left being somewhat weaker, and yielding a duller sound on the application of the stethoscope.

Professor Romberg, in his remarks on the above case, refers to two others, somewhat similar in their nature. The one is contained in the collections from the unpublished writings of Parry, vol. i. p. 478; the other communicated to him by Dr Lehmann, of which the following is an abstract. In a young girl, aged 18, who had suffered from impaired digestion, and scrofulous swelling of the glands of the neck in childhood, there was observed, three years ago, two small white spots on the left side of the face, the one below the external angle of the eye, the other on the lower jaw, near the foramen mentale. It was remarked, that during the last two years, whilst the rest of the body, and especially the face, continued to fill up, these two spots remained undeveloped. The skin over them presented the same freshness, sensibility, and temperature as on the opposite side, and the motion of these parts was normal. But the whole left side of the face appeared as if deprived of fat, and this was especially the case at these two spots, where the skin appeared as if adhering to the bone. The two spots were of a brilliant white colour, and were only to be distinguished from cicatrices, by the circumstance that they were quite smooth and moveable.—*Professor Romberg's Klinische Ergebnisse*, Berlin 1846.

CONSIDERATIONS ON THE TREATMENT OF TYPHOID FEVER. By M. GENDRIN.

Typhoid Fever.—The dothinerteritis of Bretonneau, and typhus abdominalis of the Germans, has lately become unusually common in Edinburgh. It may be said to be the prevailing form of fever both in that city and in Glasgow, a circumstance sufficiently curious, when it is remembered that, for several years past, no intestinal lesion has accompanied the disease. It was first remarked by Professor John Reid, when pathologist to the Edinburgh infirmary, that the few cases which appeared there, always came from the country, more especially from Linlithgow, or Fife, and never originated in the city. Dr Hughes Bennett, the present pathologist, has, for more than three years, had occasion to confirm the truth of this observation, and lately stated (see report of Ed. Medico-Chir. Society, Month. Journ., June 1846), that during that time, only two cases had occurred in the infirmary. During the present winter, the disease has been very common, and he has examined upwards of twenty cases, in which the follicular lesion of the intestines has been more or less well marked. Under these circumstances, observations on the treatment of this affection, by so experienced a physician as M. Gendrin, condensed from a lecture he lately delivered, may be considered as particularly well timed.

According to M. Gendrin, typhoid fever must inevitably pass through its three stages of increase, intensity, and decline. He insists on this, because the practical rules which result from it, are, that the disease cannot be cut short, that the expectant system is the basis of our treatment, and that the active interference of art ought to be limited to accelerating the evolution of the disease, and to moderating the accidents which arise during its course.

Thus, in a slight case of typhoid fever, M. Gendrin only follows the expectant system of medicine. He causes it to consist in surrounding the patients with all the hygienic precautions compatible with their social position: in submitting them to a dietetic regimen, having relation to the state of their digestive organs, and removing all those moral influences which may act injuriously upon their minds or bodies. In this manner a cure is effected in a considerable number of cases.

When the disease is severe, a more active treatment is necessary, consisting of blood-letting, evacnants, baths, epispastics, alteratives, &c.

M. Gendrin believes it useful to practise one or two bleedings from the arm in the first stage; but when this has passed, when the petechial eruption is developed, he considers no benefit is to be thus obtained. Local blood-letting, according to him, causes more injury than benefit, for leeches or cupping applied to the abdomen, act at too great a distance from the inflamed intestine, to render them efficacious; and, on the other hand, a quantity of arterial blood is removed, which enfeebles the patient without doing any good.

In many cases, dyspeptic symptoms may be observed at the commencement, or during the progress of the first stage. All the individuals who enter his wards with stomach symptoms take an emetic with the best results. Typhoid fevers, accompanied at their commencement with symptoms of prostration, are transformed into a benign fever, under the influence of a vomit. Such was the treatment the French found to succeed completely at Vienna in 1809. It is only necessary that the emetic should be administered at an early period, for when the petechial eruption has occurred, and ulcerations have taken place in the small intestines, or an erythematous state in the stomach, the remedy is more hurtful than beneficial.

M. Gendrin strongly condemns the indiscriminate use of purgatives, more especially drastic ones, which he rejects altogether. The only agents of this class he employs are gentle aperients, or emeto-cathartics, which, in addition to a local, conjoin a general action. He prescribes these remedies at the commencement, and sometimes during the decline of the disease, when there remains some flatulence, and liquid matters remain in the intestines, as is announced by gurgling. A saline purgative will then excite the action of the intestines, and decide the convalescence.

M. Gendrin has employed cold affusion in typhoid fever for fifteen years, causing water to trickle over the surface, or to be applied with a sponge. He considers it most efficacious in moderating the symptoms of the first stage, and it is very grateful to the patient. The subtraction of caloric in this way causes the pulse to fall from 120 to 80, and even 60, beats in the minute. It sometimes happens that the pulse very slowly rises again, and therefore it is necessary to proportion the subtraction of caloric to the reactive powers of the individual. It should only be applied in the first stage, for after the eruption, reaction is not possible.

Tepid baths, on the other hand, are applicable exclusively to the adynamic period. They then serve to re-establish the action of the skin. It is necessary to prevent their too prolonged use, and too high temperature, otherwise they become debilitating.

Epispastics, more especially blisters, are at present very little employed.

In the last stage tonics are often necessary, especially combined with nutritive substances. M. Gendrin gives, with beef tea (*bouillon*), the wine of quinine, which has the advantage of uniting a fixed tonic with a diffusible stimulus. Wine, associated with bitter and aromatic substances, he prefers to camphor, which is only useful when there are ataxic symptoms.

Lastly, M. Gendrin speaks of the medicines which act chemically. They are, Seltzer water, chloride of sodium, alkalies, and chlorine, administered internally. All these preparations, according to the Professor of la Pitié, have no great advantages to recommend them. The effervescing lemonade only constitutes an agreeable drink, the action of which, slightly stimulating, may be rendered serviceable. With regard to the chlorates and chlorurets, they have such an insupportable odour, as to be rejected for this cause alone, even were their therapeutic inutility not proved by experience.—*Journal de Médecine et de Chirurgie Pratiques*, Decembre 1846.

M. LEGROUX ON LEAD COLIC.

The following conclusions on the above subject are arrived at, in a Memoir lately read by M. Legroux to the French Academy of Medicine.

NEW SERIES.—NO. VIII. FEB. 1847.

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1. Lead colic is a general disease, and not a local affection situated in the alimentary canal.

2. The symptoms of the disorder, notwithstanding the frequent predominance of colic and constipation, which, however, may be absent, indicate a derangement of innervation and of nutrition. Chemical analysis shows, in the organs of individuals who die under it, the existence of lead, even when the patient has been affected only two months and a half, as occurred in a case which died cachectic, after having undergone different kinds of treatment. On the other hand, the lead absorbed is eliminated by the skin, as is proved by the formation of sulphuret of lead on the surface during the employment of sulphurous baths, and that after frequent repetitions, notwithstanding soap has been used in the intervals to remove the soap already formed. It results from these three kinds of facts, that the saturnine disease is an empoisonment, and not neuralgia, and that in a nosology, it should be placed among nervous affections, but at the side of poisonous ones.

3. The cure of this disease is produced by depuration ; it may be spontaneous.

4. The number and rapidity of the cures obtained by expectation, in experiments made on twelve cases, ought to produce great caution in drawing conclusions concerning different therapeutic methods.

5. The treatment of the saturnine disease comprehends five indications. The first is the removal of the external poisonous focus, that is to say, the cleansing of objects or garments, and the neutralization of the lead deposited in the skin, by the aid of sulphurous baths, which it is necessary to continue some time after the cure, real or apparent. The second is the destruction of the internal poisonous focus, or the neutralization and expulsion of the lead deposited on the surface of the mucous membrane. Alum, sulphurous waters, sulphuric acid, the hydrated persulphuret of iron, meet this indication, but the action of these means are only prophylactic, and not curative. The third indication is curative ; it is directed to the elimination of the lead absorbed. It acts by provoking or favouring the secretions. Experience has shown, that results the most prompt have been procured by evacuates. A fourth indication consists in counterbalancing the toxic action of the lead by agents, or a medication having an opposite action. According to the Italian doctrine, opium is exactly this agent, but its use as a basis of treatment has been far from answering the opinion that the Italian school has given of it. A fifth indication is directed to the morbid states that the saturnine disease leaves after it, of which the most constant is a state of anemia, which requires the administration of ferruginous preparations, and a strengthening regimen.

Any treatment which omits one or other of these indications is imperfect. The two first are purely prophylactic, and, with expectation, cause the cure in most cases. The third, without the preceding, especially without the first, renders a relapse likely. The fourth alone has the same inconvenience, and the cures obtained by it are only the effects of a spontaneous depuration. Lastly, without the fifth, more than one cure will leave behind a morbid state more or less serious, and a debility which singularly exposes workmen to relapses, when they resume their work on being discharged from the hospital.—*Journal de Médecine et de Chirurgie Pratiques*, Decembre 1846.

M. RAYER ON BLEEDING IN THE ATTACKS OF GOUT.

M. Rayer affirms that he has always found bleeding useful in the attacks of gout. The supposed metastasis to the head, observed in some attacks, is, according to him, a simple coincidence of apoplexy supervening on gout. This only occurs when, in gouty persons, the arteries of the brain are ossified. This is evidently the source of the apoplexy, but is not a contra-indication to blood-letting.

A baker, strongly formed, aged 36 years, of a sanguineous temperament, had been, for six or seven years, a martyr to attacks of gout, which returned on various occasions, in the toes, knees, or hands. The wrists and knees, finger

and toes, were knotted, swollen, and altogether deformed when he entered the wards of M. Rayer; the skin was red and painful. The man stated that he lived a sober life, and that he only occasionally inebriated himself with wine. Gout was not hereditary in his family. A venesection at the arm rapidly dissipated the pains, and cut short the attack, without producing the least inconvenience. The blood was buffy. The patient says he has been frequently bled during attacks of gout, and has always received benefit from it.—*Journal de Médecine et de Chirurgie Pratiques*, Decembre 1846.

MEDIASTINITIS. By Dr C. PFEUFER.

A young man, aged eighteen, of scrofulous habit, was admitted into the Bamberg hospital, with symptoms of hypertrophy of the heart, and a violent pain in the left breast, accompanied by cough and febrile symptoms, which disappeared on venesection, leaving merely a feeling of fulness and constriction. After eight days, a fluctuating swelling arose under the muscles above and at the side of the sternum. It was opened, giving exit to a large quantity of yellow matter; in the incision, a fistulous opening, three inches deep, was seen to lead between the cartilages of the third and fourth rib, down to the pericardium; a second one, between the cartilages of the second and third ribs, two inches long, conducted to a bare rough portion of the sternum. This speedily enlarged, so that in a few days, the finger could be passed in, and the corpus was separated from the manubrium sterni, by the force of the heart's action. After the opening of the abscess, so much pus was passed with the urine, as to occupy three inches in a vessel eight inches high, with relief to the patient. This ceased in a few days, and was followed by pain over the tuberosity of the tibia, and œdema of the left foot and leg. The pain was relieved by leeches. The œdema extended as high as the middle of the thigh, and was relieved by punctures and a spica bandage; but this had to be removed, on account of a recurrence of the above mentioned pain. A fluctuating swelling had now formed, on opening which, a quantity of thin ichorous matter escaped, and $1\frac{1}{4}$ inch of the tibia was found to be bare of periosteum, and in a state of commencing necrosis. Whilst this proceeded, the abscess in the breast ceased for a few days to secrete pus, and the carious portion of the sternum began to granulate. A return of the secretion here was followed by a drying up of the sore on the tibia, which was of a lively red, and put on the appearance of hospital gangrene only the day before death, which followed forty-five days after admission. On the previous day, a new fistula appeared between the fourth and fifth ribs, on the left side.

On dissection, the carious portion of the sternum was found covered with a cartilaginous pseudo-membrane, $\frac{1}{4}$ inch thick. A cylindrical cyst, 1 inch in diameter, and with walls, $\frac{1}{4}$ inch thick, was found under the sternum, extending from the beginning of the manubrium to the insertion of the cartilage of the seventh. Into this the three above mentioned fistulæ opened. The lungs were healthy; the left ventricle hypertrophied; the right dilated. The left kidney contained, in its inferior half, isolated purulent cysts and numerous purulent points.

This case is interesting, from the twice occurring alternations of the purulent discharge between the carious sternum and tibia, and in relation to the still disputed points of absorption of pus and purulent diathesis. Here we have evidently to do with a general evil. Had absorption taken place, the characteristic fever would certainly have been present, together with the symptoms of pulmonary affection during life, and abscess in them after death. It is also instructive, from the source of the pus in the urine having been found in the kidney.—*Zeitschrift für Rationnelle Medizin*.

EFFUSION OF BLOOD IN THE CEREBRO-SPINAL CAVITY—ANEURISM OF THE BASILAR ARTERY. By C. PFEUFER.

The individual, a married man, aged forty-one, had led for several years a drunken and immoral life, and had been during the previous winter in very

wretched circumstances. For several years he had been subject to occasional fits of impossibility of swallowing—only overcome after several minutes of exertion. These occurred during rapid eating, or after sudden cooling of the neck. During the winter he had worked in a miserable room, with his legs exposed to a constant draught, and had suffered from continual headache and costiveness. On 12th February, while at work, he fell suddenly senseless from his seat, and was said to have breathed stertorously. No convulsive movements were observed—his eyes were open and immoveable. Urine and fæces passed involuntarily. This state lasted for about an hour, when he gradually recovered; a feeling of soreness and numbness remaining in his legs. In the night of 14th–15th February, a second attack occurred, commencing with violent spasms of the œsophagus—the patient was not senseless, but lost the power of speech, and made some convulsive movements with his hands and arms. This attack passed more speedily than the former, yet he was induced to enter the hospital, which he did on the 18th. The symptoms remaining were a feeling of stiffness in the spine, and of constriction of the under part of the breast—a painful weakness of the lower extremities, which were easily flexed, but attempted extension produced pain. He could stand, but not firmly, and tottered on attempting to walk. His knees remained bent, and the feet could scarce be lifted from the ground. There were pain in the head and ringing in the ears—his voice was hoarse, and he stuttered occasionally—tongue coated—inclined to be dry—nights sleepless—temperature of skin natural—no alterations to be detected in the spinal column or limbs on examination with the eye and hand—his bowels were opened by sulph. magnes. February 20th, after sleeping till midnight a new attack came on—he lay senseless on his back—his legs drawn up on his belly, but not convulsed—eyes open, immoveable—pupil dilated, insensible to light—respiration stertorous—tough saliva flowed from his mouth—temporal arteries beat violently—temperature of the head not increased—face and body covered with cold perspiration—pulse accelerated—urine and fæces passed involuntarily. Sixteen ounces of blood were drawn from a vein—mustard cataplasms applied to his calves, and a bladder of ice to his head. After twenty-five minutes the respiration was freer—his eyes more moveable—he muttered screamingly, but remained unconscious. Mustard was now applied to the front of his neck, and twenty drops of laudanum given. After this he could swallow better, and tried to speak—his mind wandering. In the morning he was much better, no new paralytic symptoms had occurred, nor were the old ones increased—a blister was applied to his neck, and ten drops of laudanum ordered to be given every quarter of an hour, till sleep came on. His mind wandered slightly for three or four days. He was subsequently treated with quinine and wine (as clyster), with thirty drops of laudanum each evening. He continued improving. On 1st March he was ordered sixteen cupping glasses along the spine, and a warm bath daily. On the 5th, he got up at six o'clock, after a good night's rest—walked round the room—set a clock hanging rather high, and went to bed to breakfast, when he was seized with violent spasms of the œsophagus. Ten drops of laudanum caused some relief, and he remained quiet till 10 A.M., when he suddenly became senseless and died.

Section, twenty-four hours after death. Cranium.—Serous infiltration of the pia mater; a thin layer of extravasated blood between the pia mater and arachnoid, over the posterior portions of both cerebral hemispheres, partly fresh, and partly of an older date, and already altered; the cavities of the brain contained bloody serum; the commissural system, particularly the fornix, much softened; the central portion of the latter partially destroyed; the cerebral ganglia, particularly the corpora striata, felt as if strewed with sand; the middle portion of the cerebrum soft and full of blood, especially external, to the descending horn of the right ventricle; exactly corresponding to this, quite externally, between the convolutions of the brain, there was a thin old extravasation. The internal surface of both hemispheres was also softened,

and here also lay a superficial extravasation; a thin piece of bone, three lines in diameter, was found in the arachnoid, external to the end of the right anterior horn of the pons Varolii; the medulla oblongata, and inferior and internal surface of the right hemisphere of the cerebellum, were covered with a fresh clot. After removing that portion concealing the basilar artery, an aneurismal sac was found, four lines long and three broad, communicating with the artery, filled with a coagulum, and having an opening the size of a pin's head at its inferior and anterior portion; the artery was here atheromatous in its entire circumference. This condition prevailed in the cerebral arteries. In the spinal cavity, the cellular membrane was found full of blood connected with the clot within the skull; another, likewise recent, was found over the posterior surface of the superior cervical portion of the chord. There was a similar one over the posterior surface of the inferior portion of the lumbar chord and cauda equina, from two to four lines thick, between the pia mater and arachnoid; the latter stretched over it, and in some places torn. At isolated points on the inferior cervical portion of the chord, especially towards the right, where exists a clot a line thick, the internal surface of the dura mater was found intimately united with the arachnoid. On removal of the chord, a fresh coagulum was found anteriorly, extending over the entire dorsal portion to the lumbar enlargement; besides, there was found on the posterior surface of the inferior dorsal portion, a flat, brownish red coagulum, of older date, containing but little fluid. Finally, on the posterior surface of the inferior cervical and superior dorsal portions, a rusty clot, of a pale red, at the place of exit of the spinal nerves, two inches long. The external layer of the spinal chord was saffron yellow. In the arachnoid were numerous small osseous points.

The effusion covering the cerebellum, pons Varolii, medulla oblongata, and spinal chord, manifestly occurred shortly before death. That part of the clot which was oldest, on the posterior portion of the inferior cervical and superior dorsal regions, could not have occurred before the 12th of February, as no symptoms of spinal affection had been observed previous to that date. The changes in it must consequently have taken place within twenty-four days, a much shorter space than that usually considered necessary.

That part of the clot on the posterior surface of the dorsal portion must, according to the symptoms, be ascribed to the 14th; but the great difference between the two in colour and consistence would lead one to refer it to a period later than two days; the effusions on the cerebrum are likewise of different dates, and, doubtless, occurred simultaneously with those in the spinal cavity. The attack of delirium on the 20th was, doubtless, occasioned by a copious effusion between the membranes, which, being thinly spread over a large surface, occasioned more the symptom of irritation than compression. A much smaller quantity effused into the substance of the brain would infallibly have produced paralysis. After this attack the head symptoms were increased; doubtless, the softening of the brain dates from this. For a similar reason paralysis had not followed the effusion in the spinal cavity; but irritation of the nerves of sensation (pain), with altered power of their motion (difficulty of movement, and contraction of the inferior extremities), being exactly the symptoms produced by mechanical irritation of the posterior columns of the chord. Had no other cause of death occurred, cure was here probable, from the state in which the extravasation was found; but, in this case, it would have been looked upon as a cure, not of apoplexia spinalis, but of rheumatismus paralyticus, for which it had been treated, and which obscure disease may be nothing else than a superficial effusion in the spinal membranes.

Aneurisms of the basilar artery have been five times observed—by Carswell (Illust. fasc. IX. T. IV. F. 1.), Albers (Horn's Archiv. 1835, heft 4.), Jennings (Trans. Prov. Med. and Surg. Assoc., Vol. I, 1833), Serres (Archiv. Gen. de Médecine, V. X. p. 421), and Hodgson (Treatise on Diseases of Arteries and Veins). In the three latter death occurred by rupture of the sac; in all, headaches had long preceded death—and the individual mentioned by Jennings,

before death, had an attack of spasm of the œsophagus. In one case there were other causes to account for the headache. The spasm of the œsophagus is more interesting. This often occurs without any cerebral affection, and, after a time, disappears. Pressure on any part of the vagus nerve, from its origin to the head of the gullet, will produce it, and consequently aneurism of the basilar artery, of any size, is a sufficient cause. Its periodical occurrence may depend, first, on occasional congestion, the aneurism being thereby enlarged; and, secondly, on the same cause, by which we find that, even under the maintenance of constant pressure, the symptoms are only periodic, as is often seen in tumours of the brain. The fits occurred during eating, or when the neck was suddenly cooled, consequently, by mediate or immediate irritation of the vagus, a spasmodic attack preceded each of the four apoplectic fits; although, as to the three first, no rupture of the artery could be thought of.—*Henle and Pfeufer's Zeitschrift für Rationnelle Medizin*, 1 Band, 1 Heft.

This case is carefully recorded, but we regret that the various softenings had not been examined microscopically, so that it might have been ascertained which were inflammatory and which were not. As nothing is known on this point, it is of course difficult to say whether the spasms were caused by the ramollissement, or whether they were induced by the aneurism, as the author supposes.

MIDWIFERY AND DISEASES PECULIAR TO WOMEN.

CASE OF OVARIAN DROPSY APPARENTLY CURED BY SPONTANEOUS RUPTURE OF THE CYST, AND ULTIMATELY TERMINATED BY A SIMPLE MODE OF OPERATION. By W. H. BAINBRIGGE, Esq., Liverpool.

Mrs M. æt. 31, when first seen, on the 21st of January 1842, laboured under a tumour in the abdomen, which in size considerably exceeded that of the uterus in the ninth month of pregnancy. It was the growth of 18 months. She complained also of a small tumour which protruded externally from the vagina. There was great general debility and depression of spirits, much emaciation and dyspnœa. A careful examination led to the conclusion, that the abdominal and larger tumour was a unilocular ovarian cyst, and that the smaller vaginal one was a portion of it, pushed forward and protruding externally. On being tapped, and 25 pints of sero-sanguineous fluid being removed, both tumours disappeared. They gradually returned, however, and the tapping was repeated on the 16th of November, about nine months after the first operation. The hydriodate of potass and electro-galvanism were then tried without any beneficial effect. The patient now, herself, compressed and flattened the tumour anteriorly, by means of a piece of wood placed on the abdomen, and firmly secured by a bandage. This contrivance, while it diminished the prominence of the tumour anteriorly, increased it in the vagina, and by its distension upwards and laterally, caused great distress and increased dyspnœa. On the 6th of May 1843, she was seized with all the symptoms of acute and very severe peritonitis. This was actively treated by leeches, fomentations, calomel and opium, and salines. She gradually recovered. On the 4th of June the abdomen began to diminish in volume. She passed an unusually large quantity of urine, and in a fortnight both the abdominal and vaginal tumours had subsided. From this period to May 1844, she enjoyed good health. At this time a new tumour developed itself in the abdomen, apparently commencing on the right, or opposite side to the former one. It increased in the same manner, but without any vaginal protrusion, and at the commencement of 1846, had enlarged so considerably, that she hinted at the performance of Mr Clay's operation. Mr Bainbrigg resolved on proceeding as follows. To make an incision through the abdominal parietes about three inches in length; draw out a

portion of the cyst, say one half; then evacuate the contents, carefully guarding against the escape of the fluid into the peritoneal cavity; next remove the outer portion of the cyst, and bring the edges of the remaining part into opposition with the lips of the external wound, with a view to their union by adhesive inflammation, and thus form an opening into the cyst from without, by which its future contents might readily escape.

On the 14th March 1846, the operation was performed. The cyst, however, could not be drawn out as originally intended, on account of the adhesions it had contracted. It was therefore opened, about 25 pints of a sero-sanguinolent fluid was drawn off, and a plug introduced, so as to keep the wound open. On the fifth day the discharge became purulent, and continued so up to May, amounting on an average to about 8 ounces in the 24 hours. From this time it began to decline. Stimulant and astringent injections were occasionally thrown into the cyst during the first month, but without producing any effect. Early in June, the discharge had so diminished, that the patient took a tour through the country, which continued until August. On her return, the tumour had entirely disappeared, and there remained a small fistulous opening in the wound communicating with the interior of the cyst, and of the size of a common quill, from which scarcely half an ounce of pus was discharging daily. Her general health is perfectly re-established. She is enabled to take her usual exercise, both on foot and horseback, and experiences no inconvenience beyond that of the daily dressing. The catamenia have never re-appeared in their natural course, but a vicarious bloody discharge from the wound has been established; it generally lasts about three days, accompanied by some pain, and returns at the natural period.—*Prov. Med. and Surg. Journal*, Vol. iii. p. 593.

This is a remarkably interesting case, and deserves some comment. Mr Bainbrigge observes, "By establishing a direct communication from without, with the interior of the cyst, I had in view, not only to form an exit for the discharge of the secretion that might subsequently collect in the cyst, but also to set up a new action, and change the nature of the secretion, hoping thereby to effect a radical cure of the disease. By excision of a portion of the cyst, I proposed, firstly, to diminish the superficial extent of the secreting surface, and thus proportionally reduce the quantity of the subsequent discharge; and, secondly, to prevent the escape of the latter into the peritoneal cavity, by uniting the edges of the cyst to those of the external wound; suggestions for which I am indebted to my friend, Dr Carson. The former object I attained, but was defeated in the latter in the adhesions I met with. The case, notwithstanding, terminated happily."

From subsequent observations, Mr Bainbrigge seems to think his plan universally applicable. It could, however, only be useful to cases in which the cyst is unilocular, where no ulcerations or openings exist in the external sac, causing communications between the interior of the tumour and the peritoneal cavity, and where there are no adhesions. Now, how are these points to be ascertained? The difficulty here, as in all such cases, is one of diagnosis, and the points in question do not seem to have suggested themselves to the author's mind. Had he employed Professor Simpson's uterine sound, he would probably have discovered on which side the tumour existed, and perhaps have detected the adhesions. In the latter case, would he have operated? or does he advise, from the result which occurred in his patient, a perforation to be made into every ovarian cyst, and an external opening established? Such practice as a general rule is not to be entertained for a moment. First, If openings exist in the external sac, or it contain secondary cysts, it would be useless. Secondly, If the tumour were free, there is great risk of not producing adhesion between the sac and the external parietes, thereby causing peritonitis, which might carry off the patient, if acute, or should she escape this first danger, might induce strangulation of the gut from bands of chronic lymph. The practice, therefore, can only be applicable where adhesions have previously been ascertained

to exist, as was luckily the case in the present instance. Lastly, Are we to consider the lady, whose case is described, cured? We fear not. It would seem that at present, nine months after the operation, a fistulous opening still exists, discharging half an ounce of pus daily, besides a vicarious discharge of blood during each menstrual period. This can only be considered a partial cure at best, and we have yet to learn how long such a state of matters will continue; whether the fistulous opening will gradually close, or whether it will not ultimately endanger the patency of the alimentary canal, and prove destructive to life. We sincerely trust that Mr Bainbrigge will at some future period report the conclusion of his very interesting case.

The rupture of the first tumour is another instance of the effect of pressure. What would have been the result, if the vaginal tumour had been punctured and kept open, whilst pressure was applied to the abdomen? Several other interesting questions suggest themselves to us in connection with this case, but want of space compels us to conclude.

ON THE TREATMENT OF AMENORRHOEA. BY LALLEMAND.

The remedy here recommended consists of aloes, ergot of rye, and rue, made into pills. Every pill contains about two-thirds of a grain of each of these substances, and the number prescribed is from 9 to 18 in 24 hours, or from 6 to 12 grains of each drug in the day. If the case be recent, the proper day for the return of the menstruation is to be reckoned, and the use of the pills commenced on that day; and the pills are employed for four days. If the case is of so long standing that the proper day cannot be fixed on, the time chosen is arbitrary; but if the first trials are unsuccessful, they are to be repeated at the corresponding periods of the succeeding months. Three pills are given, morning, noon, and night, in the first months, afterwards they are gradually increased to six, at the same three periods of the day. During each of the four days of treatment, four or five leeches are applied to the vulva, and after the leeches, a vapour bath is used.—*Clinique Medicale de Montpellier* and *Gazette Medicale de Paris*, Decembre 12, 1846.

We have no doubt this treatment will frequently succeed, though it has no title to the universal character assumed for it by Dufour, the reporter of Lallemand's practice.

ON THE LOCAL TREATMENT OF LEUCORRHOEA. BY A. LEGRAND.

Legrand commences his short memoir with a deserved compliment to the practitioner, whoever he was, who first thought of the application of nitrate of silver in the treatment of affections of the mucous membranes, characterised by a diminution of their vitality, a relaxation of their texture, an increase and vitiation of their secretion; for, he says, this idea has been the happy foundation of many safe uses and unexpected benefits of this remedy. He refers in particular to its unexampled success in virulent ophthalmia, whether sporadic or epidemic, and in urethral discharges, and remarking on the varieties in the strength of the applications employed by different authorities, he condemns the excessive quantities recommended by some, as a practice eminently disturbative. Noticing the easy transition from the use of nitrate of silver in the urethra to the use of it in the vagina, he remarks on the anatomical causes of the less efficacy of the form of solution in the latter case, as having led first to the direct cauterization of the canal, either general or partial by the aid of the speculum, with the nitrate in the solid state; secondly, to the use of rolls of lint, bougies, and the like, smeared with an ointment of nitrate of silver.

To the use of the nitrate in the solid state he objects, on the ground of its severity and other inconveniences, and rejecting the supposed advantage of the tampon for keeping apart the inflamed opposite surfaces of the canal, he objects to it, besides, as a foreign body, the presence of which must irritate. Our

author's method in opposition to these, is the simple application of an ointment of the nitrate, which may penetrate between the rugæ of the canal. This ointment is composed of one part of nitrate of silver, dissolved in twenty-five parts of water, and then thoroughly mixed with seventy-five parts of cerate. From two to three grammes (from thirty to forty-five grains) of this cerate are put into a muslin-bag, open enough in texture to permit the cerate to pass through under a slight pressure. The fore-finger is inserted into this bag up to the first phalanx, the bag being fastened around it, and the finger so armed is introduced into the vagina, and is carried over its whole extent, so that every sinuosity of the canal and of the vulva may be freely anointed with the contents of the bag. Our author occasionally employs the ointment of somewhat greater strength. He finds it of the greatest service in various affections of the vagina of an inflammatory character, accompanied with discharges, care being first taken to remove as far as possible those determinate causes with which the affection may be connected. Other remedies may be applied to the vagina by the same method—thus, Dr Legrand has used successfully by this method an ointment containing tannin in relaxation of the vagina.—*Gazette Medicale de Paris*, January 2d, 1847.

ABSENCE OF THE UMBILICAL CORD.

This case was the subject of discussion at a late meeting of the Surgical Academy of Madrid. The fœtus was in the eighth month. It exhibited an exomphalos which contained the liver and all the abdominal viscera. This tumour, instead of being covered with the skin, was covered by a membrane of a serous character. The vertebral column was inclined to the right side, and the extremities deviated from their natural direction. There was no appearance of an umbilical cord. The serous membrane which covered the tumour, formed the apex of a cone at the fœtal surface of the placenta. There was no considerable vessel found proceeding from the surface of the placenta to the fœtus. The heart, the foramen ovale, the ductus venosus, and the principal vessels of the fœtal circulation besides, were in a normal state.—See *Gazette Médicale de Paris*, January 9th, 1847.

The particulars given of the above case are too few and meagre to be satisfactory. The monstrosity here is obviously a defect of the ordinary development, a continuance of an early structure to a late period of gestation—but the most interesting part is omitted in the account, namely, the precise state of the vascular structures, by which the placenta communicated with the exomphalos.

CASE OF EXTRA-UTERINE (ABDOMINO-TUBAL) PREGNANCY ; DEATH FROM PERITONITIS. By MARIANO CASABON.

The patient in this case was forty-five years of age, the mother of eight children. In 1844, she had a miscarriage in the fourth month. In August 1845, she had entered the ninth month of pregnancy, when M. Casabon was called. He describes her state as follows :—The face pale and downcast, the abdomen as usual in the ninth month, but presenting two enlargements, one more considerable towards the left side, the other, of less extent, towards the right ; the belly relaxed, as falling upon the genitals and thighs ; the mammæ flaccid ; the movements of the fœtus are felt only at long intervals. Considerable disorder of the digestive system ; pains of the abdomen ; the pulse small. The vagina is humid with a sanguinolent mucus ; no dilatation of the os uteri. These symptoms continued for three days, vomiting being urgent and painful, with increasing exhaustion. On the fourth day, faintings and cold sweats came on, and the patient sunk. Half an hour after death, the abdominal parietes were divided. On opening the peritoneum, a considerable quantity of blood escaped, and the head of a fœtus being perceived, it was withdrawn by

version. A priest baptised it, *under condition*. The foetus was mature, well developed, but dead. The integuments were raised in several parts; the cord was flaccid and torn; the placenta adhered strongly to the right iliac mesocolon (the meso-cæcum), to the Fallopian tube and ovary of the same side; but at some points it was detached, whence the hemorrhage. It was discovered that the tumour recognised before death, on the right side, was the uterus. The Fallopian tube and ovary of the left side, were in their normal condition; but on the right side the uterus was contiguous to the points of adherence of the placenta. On drawing the uterus strongly forwards, it divided transversely at its vaginal part, and then it was seen that there was no dilatation of the neck: that the body and the fundus were directed towards the points of adherence. The uterine walls were three inches thick; their tissue, very dense, grated under the scalpel. The cavity of the organ was like that of an unimpregnated female. The foetus, the placenta, and the uterus were covered with an envelope or cyst, confounded in front with the peritoneum, adhering behind to some convolutions of the intestines, chiefly to the meso-cæcum, as a right side, and to the right ovary and Fallopian tube, as a left side. The texture of the cyst resembles that of the chorion and amnion in normal gestation. The peritoneum was highly injected and bedewed with blood.—*La Faculté* for 1845 and 1846.

FORENSIC MEDICINE AND MEDICAL POLICE.

INFANTICIDE—ACQUITTAL OF THE MOTHER ON TRIAL.

This case was tried at Paris, the mother being charged with the death of the infant. The body of the infant was found much mutilated in a well. The medical reporters ascertained that the four extremities had been divided with a sharp instrument. Spots of blood were found on the wall of the accused's chamber, a little higher than the bed. She did not deny having given birth to a child; and it was plainly not till several weeks after the delivery that the infant was found. The state of putrefaction of the body, corresponded sufficiently with the time at which the accused must have been delivered. From the state of the lungs, at the time of examination, it was impossible to pronounce if the child had lived after birth; but the development of the several parts showed that it had reached the full period of gestation, and that it was viable; the left thigh had been separated from the trunk by a clean incision through the joint; the left arm had been separated in the same manner; on the right side the proceeding had been different; after having divided the skin and muscles of the thigh, the bone must have been broken by several blows; in the same manner the right upper extremity had been broken off, the blows being made with the same instrument by which the soft parts had been divided. With regard to the spots of blood, it was obvious, from their position and number, that they did not proceed from the delivery. On the assumption that no such cause of these spots existed in vensection as practised on a person in the bed, it seemed probable that the stains arose from the blood projected from the violent division of the extremities of the right side of the infant, which, as above noticed, had not been divided smoothly like those of the left side. The medical reporters, Chaillet and Bayard, concurred in these conclusions. The accused was acquitted on points altogether independent of the medical report.—*Droit*, 25 Octobre 1846, and *Gazette Medicale de Paris*, 9 January 1847.

The particulars above given, hardly suffice to enable us to form an opinion in this case. If the actual state of the lung be given in the original report, it is to be regretted that it was not stated in the abstract, in order to show the nature of the difficulties as to the state of the lung, when putrefaction is far advanced. It does not appear from the above account, how far the identification was complete between the infant found in the well, and that of which the accused confessed she had been delivered. On the supposition that it is com-

plete, the singular point for determination arises, if the stains of blood on the wall, were proved to have had their origin coincidently with the delivery, whether it could be pronounced confidently that blood could spring in such a manner, as to rise above the bed, only from violence offered to a living child. We fear this would be too refined a conclusion to rest a conviction on, though probably quite correct. Notwithstanding the uncertain nature of this case, we think it should not be omitted from the records of medical jurisprudence.

INFANTICIDE—CONVICTION OF THE MOTHER.

A young woman, charged with having destroyed her infant, declared that she had been delivered without assistance, after pains of such severity that she could not attend to her infant, and that after her state of inability had continued more than an hour, she had found the infant cold and lifeless; that then she passed a garter round its neck, and hung it up behind the door, where it was found, till she should have an opportunity of conveying it away. Dr Litschgi being called on to report, found a ribbon firmly tied with two knots around the neck, and determined that the infant had breathed fully, and being completely formed was viable; the mouth was half open, the tongue swollen, and in part between the lips; the skin projected on the margin of the ligature which compressed the neck; the ligature being removed, there was left a furrow marked with a bluish shade on the right side, and with a red shade elsewhere. The jury found a verdict against the accused.—Assize Court of the Lower Rhine, 20 August 1846. See *Droit*, 21 October, and *Gazette Médicale de Paris*, 9 January 1847.

CHARGE OF POISONING WITH ARSENIC AT THE DISTANCE OF TEN YEARS—CONVICTION OF THE ACCUSED.

The crime of poisoning had been committed in the village of Scamagues (Haute-Vienne), which had escaped the eye of justice. Nearly ten years had passed, and the term of proscription was nearly complete, when a particular circumstance led one of the parties to disclose the crime. On this evidence four parties were indicted, and in aid of the other evidence, the presence of arsenic in the remains of the victim was sought for. After the necessary search, a skeleton was found, which was proved by unimpeachable circumstances to be that of the person who was declared to have been destroyed. The allegation of the accomplice was, that the victim had died twenty-four hours after the administration of a considerable dose of arsenic. This skeleton, with the coffin containing it, was put into the hands of experienced chemists, and arsenic was unequivocally found in the several parts subjected to experiment. To render the fact more certain, a skeleton found by the side of the former, and taken at first for that of the victim, but afterwards disproved by certain marks, was subjected to the same experiments, and found to show no traces of arsenic. The accused were found guilty.—Assize Court of La Haute-Vienne, 26 November, 1 and 2 December 1846. *Droit*, 30 November 1 and 9 December.

POISONING WITH ARSENIC, BY MEANS OF CAKES SPRINKLED WITH ARSENIOUS ACID.

This case occurred at Constantine. The wife, the child, and the female servant of the Sieur C. were seized with violent vomitings. M. Lapère, surgeon-major of the 3d Chasseurs of Constantine, being called, learned that in the morning a Jewess had brought some cakes, and that the three persons seized with illness had eaten of them, and had been suddenly seized with vomitings. The child had vomited at the end of five minutes, the servant in half an hour, and the mother in an hour. The remains of the cakes were put into M. Lapère's hands, and, on examining them, he discovered a foreign body having the appearance of salt; on burning it, he was assured by the alliaceous smell, that it was arsenic. The child and the servant, who had vomited early, were out of danger in the evening; but the mother expired the next day. The examination of the body showed that her death had been the result of poisoning

by arsenic. On investigation, it was found that a young Arab girl, actuated by the double motive of jealousy and revenge, had succeeded, disguised, in conveying the poisoned cakes to the wife of the Sieur C. On the evidence of M. Lapère, aided by that of two chemists of Constantine, who declared to their having found arsenic in the remains of the cakes, as well as in the intestines and viscera, the girl was convicted.—*Tribunal of Philippeville*, 16, 17, 18 October, 6 and 19 November; *Droit*, 6 and 9 December 1846.

QUESTION AS TO THE LEGALITY OF ABORTION, PRODUCED FOR A MEDICAL PURPOSE.

By M. SIMONART.

A memoir similar to the present was published by M. Dubois in the *Gazette Médicale de Paris* in 1843 (p. 135). The purpose of both memoirs is principally to show the legality of the practice. Our author (a subject of Belgium) sets out with saying, that this operation, though practised often in England, has not been admitted in France and Belgium, on account of the 317th article of the penal code, which “punit des travaux forcés a temps, les médecins qui auront indiqué ou administré les moyens propres à déterminer l'avortement, dans le cas où l'avortement a eu lieu.”

Our author admits, that by the strict letter of the law, the procuring of abortion is heretofore forbidden without reference to its object, but argues that it is not forbidden by the intention of the law, which is merely to forbid a crime, and not to forbid what is in effect a piece of moral duty. He cites the case of castration, an operation performed with impunity by surgeons, though subjected to severe penalties in the code, without any exception in favour of that which is practised solely as a means of cure. He then refers to the frequent use of abortion in England for a medical purpose, notwithstanding that foeticide is there a capital crime; and, on the authority of Beck, declares, that there is no instance of an accoucheur having been prosecuted criminally for this practice. He then cites the case of induced labour, which, he says, is resorted to daily by the most scrupulous surgeons, and is never regarded by a magistrate as a crime, notwithstanding that it is in reality a procuring of abortion, and involves danger both to the mother and the child. After much reasoning to the same effect, he concludes, “Let us hope that this resource will soon be regarded as in the power of obstetrical science and practice, and that our accoucheurs, laying aside their fears, will not wait until a formal repeal of the text of the law shall afford them the seal of impunity, in a case in which their own sense of rectitude should be their only guarantee. We say more; if it may be permitted to us to express a wish, it is that the text of the 317th article of the code, as it concerns professional persons, may never be withdrawn. It is a powerful restraint against abuse; and the best practices, it is well known, are liable to be turned from their proper objects.”—*Archives de la Médecine, Belge*, April 1846.

The rest of the article is on the indications and modes of performing this kind of abortion. The profession in this country will be surprised to find there is room in France and Belgium for such a discussion.

Part Fourth.

MEDICAL NEWS.

ON ETHERISATION AS A MEANS OF PROCURING INSENSIBILITY TO PAIN.

As we closed our last number, we had no more than time to announce, in a few words, the discovery of a method of rendering patients insensible to the

pain of surgical operations and the like. Since then the periodical press, medical and public, has so trumpeted forth this discovery, that it is impossible it should have failed to reach the ears of any one of our readers. The effect produced is beyond doubt a temporary intoxication, the agent being the vapour of sulphuric ether, received into the lungs along with the air in respiration. It is singular enough that this peculiar benefit of the inhalation of the vapour of ether should hardly have been observed before; for the use of it in the form of vapour for various purposes in the practice of medicine is currently referred to in our common works on *Materia Medica*. Thus, in the excellent Dictionary of *Materia Medica*, by Merat and De Lens, we find the following passages:—"Ether respired gives rise to a feeling of coolness in the air passages, which is soon followed by a slight excitement." Again, "The vapour of ether is administered by means of a flask with two orifices, through one of which a straight tube is introduced, the one extremity being immersed in the ether, the other communicating freely with the air, while through the other a curved tube, adapting itself to the mouth of the patient, is passed, so that, when he inspires, the air which enters by the straight tube becomes impregnated with the vapour of ether as it passes through it. The inhalation is kept up for one or two minutes, and is renewed several times a-day." Again, "As an excitant, it is employed in vapour, as in asphyxia, lipothymias, &c., less frequently in chronic catarrh, with abundant secretion." There is no reference here to the effect in question, where inhalation is practised. Our authors, however, speaking of its use in the liquid form, say, when taken into the stomach in large doses, it causes a sort of intoxication, accompanied with general debility, which is quickly dissipated by its escape through the air passages. A nearer approach is made to the effect of the *Nepentheon*, as it is termed, in what Pereira says, and as a caution we think it worth while to quote the passage: "When the vapour of ether, sufficiently diluted with atmospheric air, is inhaled, it causes irritation about the epiglottis, a sensation of fulness in the head, and effects analogous to those caused by the protoxide of nitrogen; moreover, persons peculiarly susceptible of the action of the one are also powerfully affected by the other. If the air be too strongly impregnated with ether, stupefaction ensues. In one case this continued, with occasional periods of intermission, for more than thirty hours; for many days the pulse was so much lowered, that considerable fears were entertained for the safety of the patient. In another case, an apoplectic condition, which continued for some hours, was produced."¹

As to the effects observed since the new use of the vapour of ether commenced, it is to be remarked, that its influence is not quite the same in all. "In some," Dr Warren says, "the insensibility is entire, and the patient is aware of nothing which is going on; in others, a certain degree of the power of perception remains, the patient knows what the operator is doing, perceives him, for example, take hold of a tooth and draw it out, feels the grating of the instrument, but still has no pain."² Cough at the commencement of the inhalation is not unfrequent, subsequently it usually becomes easy, and after a period varying from two to eight, or even ten minutes, the state of complete unconsciousness, or, at least, of insensibility to pain, is produced. In this state the pupils most commonly, yet not always, become dilated—so that in most cases their dilatation becomes a sign of the effect having taken place, and their return to their ordinary state, an intimation of the effect of the inhalation having passed away.

The observations made on its effects in the short period since its introduction into this country, fully confirm the accounts given of it in America. It has been put to pretty extensive successful use in London, in several parts of England, and in Dublin. In Edinburgh the same success has generally attended the trials, the few instances of failure here, as elsewhere, being plainly

¹ *Mat. Med.* Vol. i. p. 375.

² *British and For. Med. Review*, No. 45, p. 309.

attributable to causes that may be avoided, as to imperfection of the apparatus. All the surgeons of the Royal Infirmary have operated in various cases while the patients were under its influence, and in one of the Medical Wards the actual cautery has been applied to a patient under its influence, without any sense of pain. The dentists here are already fully convinced of its utility, and we learn from Mr Nasmyth, that he has met with the expected success without any material inconvenience.

We might fill this number of the Journal with quotations on the subject of the new discovery. A few we shall select bearing on the means of securing success and avoiding accidents—and, first, as regards the possible ill-effects, which, however, must be rare.

“A young man was made to inhale the vapour, while an operation of limited extent, but somewhat protracted duration, was performed by Dr Dix upon the tissues near the eye. After a good deal of coughing, the patient succeeded in inhaling the vapour, and fell asleep at the end of about ten minutes. During the succeeding two minutes the first incision was made, and the patient awoke, but unconscious of pain. Desirous to be again inebriated, the tube was placed in his mouth, and retained there about twenty-five minutes, the patient being apparently half affected, but, as he subsequently stated, unconscious. Respiration was performed partly through the tube, and partly with the mouth open. Thirty-five minutes had now elapsed, when I found the pulse suddenly diminishing in force,—so much so, that I suggested the propriety of desisting. The pulse continued decreasing in force, and from 120 had fallen to 96. The respiration was very slow, the hands cold, and the patient insensible. Attention was now, of course, directed to the respiration and circulation. Cold affusions, as directed for poisoning with alcohol, were applied to the head, the ears were syringed, and ammonia presented to the nostrils and administered internally. For fifteen minutes the symptoms remained stationary, when it was proposed to use active exercise, as in a state of narcotism from opium. Being lifted to his feet, the patient soon made an effort to move his limbs, and the pulse became more full, but again decreased in the sitting posture; and it was only after being compelled to walk during half an hour that the patient was able to lift his head. Complete consciousness returned only at the expiration of an hour. In this case the blood was flowing from the head, and rendered additional loss of blood unnecessary. Indeed, the probable hemorrhage was previously relied on as salutary in its tendency.”—*Bigelow in Boston Medical and Surgical Journal*.

On its effects, as observed in a surgeon who had tried it on himself before subjecting his patient to it, we quote the following:—

“I rendered myself insensible for some seconds, five or six times, and the following observations were made by Mr M'Donnell or myself. The pupils dilated on every occasion. My pulse rose inconsiderably at the beginning of each inhalation, and fell to the natural standard on the approach of insensibility. Its force was not sensibly affected. My complexion was rather raised each time, and one occasion only, my lips became blue. Soon after the commencement of each experiment, I experienced a disagreeable hot sensation in the trachea and principal bronchial tubes, and irritation that enforced cough. As insensibility approached, these symptoms quite disappeared, and, at the moment of insensibility, I had the feeling of a profound stun, as if from a heavy blow on the head, but without any sense of blow, and without pain. My sight was good till very near the moment of insensibility, and I recovered it very soon after the tube dropped from my mouth. I felt an agreeable languor for ten or twelve minutes after this, and was then quite myself again. Half an hour after my experiments, no sensible effect remained, except that the kidneys acted freely, and that a little gas was extricated in the stomach, which rose to my mouth strongly impregnated with ether.”—*M'Donnell in Dublin Medical Press*.

“An eminent physician, who has himself respired the vapour of ether with

the usual effect of producing perfect insensibility of at least *two minutes'* duration, has furnished us with the following memoranda as the results of his own experience :—

“ 1. That the patient should practise with the apparatus the inhalation of common air previously to respiring the ether vapour.

“ 2. That the lips should be enclosed in a mouth-piece, or the lips firmly compressed with the fingers around the mouth of the pipe, when the insensibility begins.

“ 3. That the nostrils should be compressed by the fingers, so that no air can be received through them.

“ 4. That in order to ensure the production of a full effect, the inhalation of the vapour of ether should be continued from half a minute to a minute and a half *after* insensibility has been induced.

“ 5. That the ether vapour must not be too concentrated, or great difficulty is experienced in respiring it. It should be so diluted with air as to render it easily respirable.

“ This last-mentioned condition would be fulfilled in following the plan suggested by Mr Herapath, *i. e.*, of breathing the vapour from a bladder of air furnished with a mouth-piece.

“ The sensations which precede the stage of insensibility are very remarkable. There are various optical illusions ; and when the insensibility passes off, there appears to have been for the period a complete obliteration of existence.”—*London Medical Gazette*, January 8th.

The authors of the discovery are said to be Drs C. T. Jackson and Morton of Boston. They (or some one else who professes to have to do with the discovery) intend to take out a patent both in America and Europe ; and we already see a London agent announcing his readiness to grant licenses under the intended patent to practitioners at one guinea annually, and to public institutions at five guineas, by which the patentees of the “*Letheon*” permit regular practitioners to employ the “*Letheonic Apparatus*” to “*letheonise*” their patients. The idea of a patent is ridiculous ; but the inventor deserves to be rewarded, if he be not content with fame, by means of a public contribution.

As we go to press, we have received the following account of the successful use of this wonderful agent, in Professor Simpson's practice.

“ On the 19th of last month, Professor Simpson tested the effects of the ether inhalation in a case presenting one of the most painful and difficult forms of parturition. The patient was lame and deformed, from disease of the hip joint in early life : and the promontory of the sacrum could be felt projecting so far forwards, as to diminish the conjugate diameter of the brim of the pelvis to about $2\frac{1}{2}$ inches. At her first confinement, after being upwards of three days in labour, two excellent accoucheurs applied the long forceps, and attempted in vain, for about two hours, to extract the head. They then broke down the skull with the perforator, and emptied the cranium ; but still, in this greatly diminished state, the head required nearly an hour's strong traction with the crotchet, before it could be made to pass the contracted brim. She was strongly advised to have premature labour induced during her next pregnancy, but failed to inform her medical attendant, Mr Figg, till she had arrived near the ninth month, when it was considered too late to interfere. On the present occasion (her second labour), the umbilical cord was found presenting, with the head lodged high upon the brim, where it remained without making the slightest progress, for several hours, or offering at all to pass down into the pelvic cavity. Dr Simpson had, upon the results of some previous cases of a similar kind, resolved to avoid, if possible, the use of the crotchet or other instruments, and to extract the child by turning. He effected this by grasping easily one knee ; but after the body and extremities were born, extreme exertion was subsequently necessary to extract the head. At last, however, it passed in a compressed and flattened form. The child gasped several times after birth,

but respiration could not be established. Some time before the turning was attempted, the woman was fully placed under the influence of sulphuric ether. During the whole operation, she was, (according to her own subsequent reiterated declaration and surprise), quite unaware of feeling any pain, or having any sensation whatever, and awoke just as the delivery was being terminated. One of her first recollections was regarding the bustle of preparing a bath for the child. After she was brought under the influence of the ether, the uterine contractions continued regularly, but without knowledge or consciousness of pain on the patient's part. She is making the best possible recovery. Dr Zeigler, Dr Keith, and Mr Figg were present throughout the progress of the case." We are not aware that the ether has ever been previously employed in the practice of midwifery.

BOOKS RECEIVED.

1. A Treatise on the Plague, more especially on the Police Management of that Disease, &c. By A. White, M.D. London. 8vo. 1846.
2. Clinical Facts and Reflections, also Remarks on the Impunity of Murder, in some cases of presumed Insanity. By Thomas Mayo, M.D., F.R.S., &c. London. 8vo. 1847.
3. The Retrospect of Medicine, edited by W. Braithwaite. Vol. XIV. July-December. London. Small 8vo. 1847.
4. Hassall's Microscopic Anatomy. Part VI.
5. Chelius' Surgery. By South. Part XV.
6. Elements of Chemistry, by the late Edward Turner, M.D., &c. Eighth Edition. Edited by Baron Liebig and Wm. Gregory, M.D., F.R.S.E., &c. Part I. Inorganic Chemistry. London. 8vo. 1847.
7. Handbuch der Pathologischen Anatomie. Von Carle Rokitsansky, Med. Dr. &c. 1 Band. Wein. 8vo. 1846.
8. Heber die Amputation un Fussgeelenke. Von Dr Franz Chelius. Mit rier Taplu. Heidelberg. 4to. 1846.
9. De Quantitate Relativa et Absoluta Acidi Carbonici ab Homine Sano et Ægroto exhalati. Auctore Adolpho Hannover, Med. Lic., &c. Hanniæ. 8vo. 1845.
10. De Auscultatione Astetricia ejusque vi in forcipem applicandam Dissertatio. Auctore Ludovico Laurentio Reumert. Hanniæ. 8vo.
11. De Rationibus Physiologicis et Pathologicis Humoris aquosi Oculi Humani Commentationem scripsit Henricus Lehmann, Licent. Medic. Pars Prior. Hanniæ. 12mo. 1846.
12. De Syphilide Kali Hydriodico Tractata dissertatio. Auctore Martino Hassing. Hanniæ. 8vo. 1845.
13. De Methodo Subcutanea Dissertatio. Auctore Severino Christiano Orsted. Hanniæ. 8vo. 1846.

TO CORRESPONDENTS.

Communications have been received from Dr Peacock, and Mr J. D. Pridie.

We have been under the necessity of refusing several parcels sent to us from America, on account of the postage demanded for them. Our foreign friends should learn that since the introduction of the penny postage, the payment of twelve and fourteen shillings for small packages, is considered in this country as extravagant beyond measure. Our rule is absolute. All parcels and communications must be forwarded to us free of expense.

Several Foreign Journals which are exchanged with ours, are received very irregularly. We have just received, for instance, the January and February Numbers of Professor Otto's Journal for 1846! There are at least eight journals, to the Editors of which our numbers are regularly sent, which we have not seen since the commencement of the New Series. We presume there is some error in the direction. Dr Cormack has ceased to have any connexion with this Journal.

ERRATUM IN JANUARY NUMBER.

Page 516, Figure V. for "gum" read "guard."

THE
MONTHLY JOURNAL
OF
MEDICAL SCIENCE.

No. LXXV.

MARCH 1847.

No. 9. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

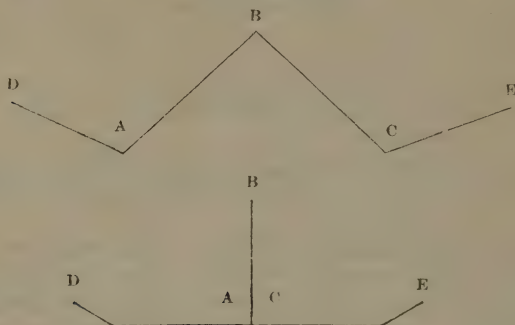
ARTICLE I.—*On Restoration of the Upper and Lower Lips.* By
JAMES SYME, Esq., Professor of Clinical Surgery.

THE upper lip is very seldom affected with cancer or any other disease requiring removal; and its congenital imperfections almost always admit of remedy by proper management of the parts remaining. Restoration of the upper lip, or the formation of a new one, by employing for this purpose a different portion of the facial integuments, is therefore an operation rarely required in the practice of surgery. It is chiefly the loss of substance resulting from external violence or abortive attempts to unite the margins of congenital fissures, that afford occasion for such a proceeding, as happened in the following case.

Margaret Thomson, aged 16, from Arbroath, was admitted upon the 5th of December 1844, on account of a hare-lip presenting very remarkable characters. It appeared, that during her childhood, three attempts had been made, by a surgeon now no more, to unite the edges of the fissure, but unhappily without success; and that, in consequence of these operations, the lip was almost entirely destroyed. At the left angle of the mouth, indeed, no part of it remained; and on the right side, there was a mere vestige, not exceeding a quarter of an inch in extent. It may be added, that the respective surfaces were firmly condensed, and seamed with scars resulting from the old incisions and sutures. The deformity and inconvenience occasioned by this state of parts, which not only exposed to view the gums and cavity of the nostril,

but seriously impeded mastication and articulation, rendered the patient very desirous of relief; and I resolved to perform the following operation with the view of affording it, though at first sight the case had certainly seemed quite hopeless.

I commenced as usual by cutting a slice of the lip freely away from each side of the fissure, including all the indurated substance, so as to expose the natural texture of the part. An incision was then made from each angle of the mouth, transversely through the cheek, slightly inclining upwards, and extending rather farther on the left than the right side. These incisions were about an inch and a quarter in length. The edges of the fissure now admitted of being brought together, without any straining or puckering of the lower lip. They were secured by a needle at their lower extremity, where forming the margin of the mouth, and by two stitches of the interrupted suture through the part above this point.



Perfect adhesion took place between the edges of the fissure, while the transverse incisions united together from their outward extremities to the angles of the mouth, and healed throughout the remaining part, so as to form a lip in every way seemly and serviceable, the mouth having a natural appearance, neither too large nor too small, and there being no deformity of the cheek. The patient was dismissed on the 31st.

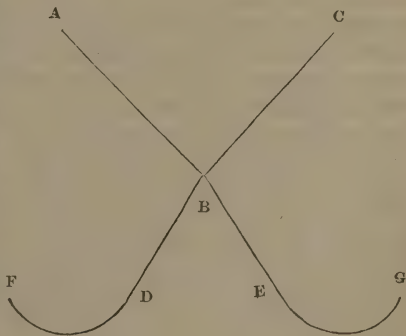
The lower lip, from its great liability to ulceration of an incurable kind, and the extensive removal of constituent substance thus rendered necessary for the patient's relief in neglected cases that have been permitted to pursue their course unchecked, is a much more frequent subject for restoration. Various operations have been proposed for accomplishing this object, and the most skilful surgeons have undertaken their performance. But, hitherto, the results of these attempts have proved so unsatisfactory, that it has generally been considered better to leave the patient unrelieved, than to try the effect of means which might probably increase his sufferings, and, at best, could not materially lessen them. The latest writer on practical surgery—Professor Liston—has nothing

better to propose than the old plan of turning up a triangular flap from below the chin, by twisting round a connecting isthmus of skin, which, however broad, does not prevent great risk of sloughing, or the certainty of œdematous swelling and protracted supuration, with the additional discomfort that proceeds from the saliva running out, and the beard growing in.

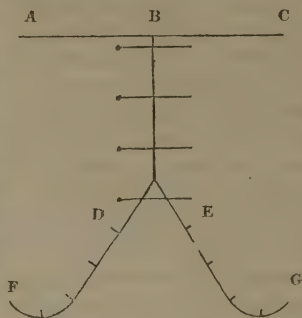
In the cases requiring restoration of the lower lip which have hitherto fallen under my observation, I seldom attempted any remedial interference, and the few trials made with this view afforded results nowise encouraging to their repetition. But upon a recent occasion of this kind, which rendered it peculiarly desirable to supply the defect, I carefully reconsidered the subject, and resolved to pursue a plan that seemed to promise more success than had been previously experienced. As this method completely fulfilled my expectations, and as it appears to admit of general application for the purpose in question, without any risk of failure, and with the effect of perfectly supplying the patient's defect, I beg to recommend it to the attention of the profession.

James Jenkins, aged 45, from Stirlingshire, was admitted into the hospital on the 14th of November last, on account of cancer of the lip. He stated that, nearly seven years ago, a hard swelling, with an ulcerated surface, had first made its appearance, and, after increasing gradually for twelve months, had been removed by me—that he had remained quite well for four years, but then observed a return of the former condition, which had since progressively extended, until he was again induced to come from the country in search of relief. Nearly the whole of the lower lip then appeared to be involved in the disease, which presented an ulcerated chasm, exposing the teeth, impeding articulation, and preventing the saliva from being retained.

On the 25th, two incisions were made from the angles of the mouth, so as to meet at the chin, and remove the whole of the morbid part in a triangular form. The lines AB and BC being supposed to represent these incisions, I cut from the point B outwards and downwards, on each side, to D and E, in a straight direction, and then, with a slight curve outwards and upwards, to F and G. The flaps ABDF and CBEG were next detached from their subjacent connexions, and raised upwards, so that the edges AB and CD came into a horizontal line, while those represented by BD and BE met together in a vertical direction, and



the lateral extensions to F and G allowed sufficient freedom to prevent any puckering or over straining. The respective surfaces were lastly retained in contact by the twisted and interrupted suture, four points of the former being inserted in the middle line from the lip downwards; and the same number of the latter in the curved portion on each side. The wound then presented this appearance. It healed entirely by the first intention; and the patient who, immediately after the operation, was able to articulate, and retain fluids in the mouth, left the hospital on the 10th of December, greatly delighted with the change effected in his condition and prospects. His features, though regular and pleasing, were not at all disfigured by the operation. The disease was entirely removed; and he could articulate as well as masticate, without inconvenience.



ARTICLE II.—*Case of Malformation of the Heart.* By T. B. PEACOCK, M.D.. Licentiate of the Royal College of Physicians; Physician to the Royal Free Hospital, and Royal General Dispensary, London.

Great contraction of the Orifice of the Pulmonary Artery; Aorta arising chiefly from the right ventricle; closure of the Foramen Ovale. No additional pulmonary branches.¹

THE boy who was the subject of this malformation first fell under my notice in June 1846. He was then two years and one month old. I was informed that he was born healthy, and continued to thrive till he was vaccinated, at the age of three months. Shortly after this he began to decline in health, and gradually became worse, till, when six months old, he was much in the same state as when brought to me.

His mother has had two other children, both of whom are remarkably healthy. While pregnant with this child, and two months before her confinement, she was frightened by seeing a child killed, and never recovered the shock she sustained.

When first seen, the child's face was full, the cheeks of a deep rose colour, and the lips livid. The sternum was arched and prominent, and the ribs flattened above, and expanded below. The abdomen was tumid, and the body generally much emaciated.

¹ The preparation of this case was exhibited to the Path. Soc. of London, on the 7th of December 1846.

The hands and feet felt cold, and the fingers and toes were of a deep blue colour, and their extremities enlarged and club-shaped, more especially the thumbs and great toes. The superficial veins in different parts of the body were very conspicuous. Several of the teeth were decayed, the mucous membrane of the mouth and tongue was in an unhealthy state, and the angles of the lips were ulcerated. There existed also a livid excoriation around the anus. The pulse was extremely quick (136), feeble, and irritable. The cartilages of the ribs in the præcordia were prominent, and the dull space was increased in extent. A loud blowing and somewhat rough murmur, accompanying the impulse of the heart, was heard over the whole præcordia, and along the course of the sternum, on each side of the lower part of that bone, and in the epigastrium. It was perceived also in the neck, and in the dorsal region on the left side of the spine. It was, however, most intense and rough in its character at the inner side of, and immediately above, the left nipple. The murmur was succeeded by a distinct second sound, but of a duller or flatter character than usual.

The child was of a very irritable disposition, and, when unduly excited, or fatigued by exertion, was subject to paroxysms of extreme difficulty of breathing, attended with violent palpitation of the heart, lividity, almost amounting to blackness, of the face, hands, and feet, and general turgescence of the superficial venous trunks.

For about two months he was occasionally brought to me, and I afterwards lost sight of him till the 5th of October. I then found him much weaker than before; his head was extremely large, and his mother thought had latterly much increased in size. He was greatly emaciated, and his appetite extremely defective; the face pale; the lips, hands, and feet livid; and the superficial veins, especially those of the neck, very large. The extremities were cold, and the fingers and toes more clubbed than before. The abdomen was tumid, and the mouth and anus still ulcerated. The præcordia sounded dull from the third intercostal space to the base, and from the left of the sternum to the line of the nipple; the cartilages of the fourth, fifth, and sixth ribs were especially prominent. From the extreme irritability of the child, it was impossible accurately to investigate the physical signs, but the loud systolic murmur was heard very distinctly on the inner side of the nipple, and along the course of the sternum. The action of the heart was extremely quick. On the evening of the same day (October 5th), he was seized with convulsions, at first confined to the upper extremities, but subsequently becoming general. He continued sensible at intervals till the evening of the 7th, when he became comatose, and died at two o'clock in the afternoon of the following day. During the last few hours, he had violent palpitation of the heart, great lividity of the face and extremities, and extreme dyspnœa. He was two years and five months old at the time of his death.

The body was examined at noon on the 9th.

The liver extended from the level of the fifth rib above, to an inch and a half below the edges of the cartilages, and across the entire upper part of the abdomen. It weighed 14 oz., and was of a deep purple colour, and very solid. The spleen was large and firm; the kidneys were lobulated and congested; the stomach and intestines were healthy. Several small hemorrhoidal excrescences were found around the anus, and the epithelium was abraded.

The cavity of the chest was small, in consequence of the pressure of the liver below, and the flattening of the ribs above; the lungs were very sparingly crepitant; the bronchial glands were large, and the tubes natural: the thymus gland was still of large size.

The heart occupied its usual site. It was large for the age of the subject, and broader in its transverse than in its longitudinal axis. It measured in girth $5\frac{1}{2}$ French inches. The right ventricle occupied almost the entire front of the organ, and the great firmness of its walls presented a striking contrast to the softness and flaccidity of those of the left ventricle. The right auricle was also much larger than the left. The pulmonary artery was small, and its coats thin; the aorta, on the contrary, was large, arose further to the right than usual, and had its whole ascending portion exposed.

The right and left *venæ innominatæ*, the *vena azygos* and the *cavæ* were unusually capacious. The cavity of the right auricle was extremely distended, and its walls averaged nearly a line in thickness. Its lining membrane was opaque. The Eustachian valve was two or three lines in width. The foramen ovale was entirely closed by its valve, which presented a deep hollow projecting towards the left auricle. The right auriculo-ventricular aperture admitted a cylinder 2 inches and 11 lines in circumference. The valvular folds were thickened, but apparently competent to close the orifice. The right ventricle was unusually capacious, and its walls thick (measuring at the base $2\frac{1}{2}$ lines, at the midpoint 4, and at the apex $2\frac{1}{2}$). The *columnæ carneæ* were large and firm. The infundibular extremity of the ventricle admitted a ball measuring one inch in circumference, but the orifice of the pulmonary artery was contracted to a mere slit two lines in length, situated between two imperfect valves, of a firm and fleshy character, which protruded into the cavity of the vessel. The trunk of the artery, though of very small calibre, was in reference to its orifice disproportionably large. Its coats were very thin. At the usual point it divided into three branches—two of which were distributed to the lungs, and the third, the *ductus arteriosus*, though at first pervious, became entirely obliterated towards its union with the coats of the aorta.

A strong muscular band crossed the upper part of the ventricle eight lines below the origin of the pulmonary artery and in front of the auriculo-ventricular aperture, so as to divide the cavity into two

portions; the anterior of which corresponded in general form to the right ventricle, and gave origin to the pulmonary artery; while that situated posteriorly opened directly into the aorta by an orifice allowing of the passage of a cylinder, 1 inch and 9 lines in circumference. The cavity of the left auricle was small; the pulmonary veins entered it as usual. The auriculo-ventricular aperture was much narrower than that of the right side (1 inch and 10 lines in circumference). The cavity of the left ventricle was also small, and its walls thinner than those of the right (base, $2\frac{1}{2}$ lines; mid-point, 3 lines; apex, 2 lines). The columnæ carneæ were small and flaccid. The opening from the left ventricle into the aorta was indirect, and narrower than that of the right ventricle. The ascending portion of the aorta was very large; there were three semilunar valves at its orifice, two of which corresponded with the right, and one with the left ventricle. There could scarcely be said to be any deficiency in the interventricular septum, though through the aorta, the two cavities communicated. The aorta gave off the usual branches at its arch, and, below the attachment of the imperious ductus arteriosus, diminished to about its natural calibre. The bronchial arteries were scarcely traceable, and the intercostal branches were natural.

The right cavities of the heart were distended with blood of a dark colour and tarry consistence; no coagula were found, except a small one in the aorta. Some blood was contained in the left auricle.

The head was large, and the anterior fontanelle somewhat open; much fluid was effused in the subarachnoid cellular tissue, and into the ventricles. At the base, a layer of soft and recently exuded lymph extended from the optic commissure to the posterior part of the pons Varolii, and passed for a considerable distance on each side, more especially in the course of the Sylvian arteries, so as to envelope the nerves proceeding from this part of the brain. In some places the deposit was fully two lines in depth. The subjacent cerebral substance, as also the organs contained in the ventricles, presented no appearances of disease. The brain weighed 37 ounces avoirdupois.

REMARKS I.—Dr Farre, in alluding to the case described by Sandifort in 1782,¹ in which, with a contracted state of the pulmonary artery, the aorta rose in part from the right ventricle, remarks, that this form of malformation of the heart is that which is of most common occurrence; and there can be no doubt of the general correctness of his assertion. The case described differs, however, from that of Sandifort, in the circumstance that there existed no communication between the auricles; and this, though by no means an unique peculiarity, is certainly not very frequently observed.

¹ Observ. Path. cap. 1. f. 10.

Thus, out of 46 recorded cases of congenital contraction of the pulmonary artery, with deficiency of the interventricular septum, I have found only 10 in which the foramen ovale is expressly stated to have been closed;¹ and 5 out of 7 others, in which, though the reports are imperfect in this particular, we may infer that the aperture was impervious.² Of these 15 cases, however, in two the symptoms of cyanosis did not appear till the patients had attained the ages of 3½ and 12 years,³ and the original degree of malformation must, therefore, have been slight. In a third case, the ductus arteriosus was still pervious,⁴ and in 7 or 8 others the pulmonary artery was only moderately contracted.

II. The departure from the natural process of development in this and similar cases of malformation of the heart, must be referred to the obstruction in the pulmonary artery, in consequence of which the blood is permanently directed into those channels which should only have transmitted it during different stages of foetal existence. That this is the case is evident from the almost constant presence of a faulty development of the valvular apparatus, in cases of contraction of the pulmonary artery; and it is obvious, that when the column of blood capable of being transmitted to the lungs by the pulmonary artery is very small, life could not be sustained for a short time, still less for a long series of years, did there not exist collateral channels by which the blood could pass from the right side of the heart into the systemic circulation. Morgagni,⁵ in describing, in 1760, the case of a female, who died with symptoms of cyanosis at the age of sixteen, and in whom the pulmonary artery was found greatly contracted, and the foramen ovale largely open, has clearly ascribed the persistence of the inter-auricular aperture to the malformation of the pulmonary artery. Dr Hunter⁶ applied the same explanation to the imperfection of the septum of the ventricles, which he found co-existent with contraction of the pulmonary artery in the case of Master Shaw, examined in 1761; but of which the account was not published till 1783. Notwithstanding,

¹ Graves and Houston. *Dubl. Hosp. Rep.*, Vol. v., 1830, p. 322.

Blackmore. *Ed. Med. and Surg. Jour.*, Vol. xxxiii., p. 268.

Huss. *Gaz. Med. de Paris*, Vol. xi., 1843, p. 91.

Olivry. *Gintrac, sur la Cyanose*, Obs. 47.

Holmstead. *Lond. Med. Rep.*, Vol. xvii. p. 455.

Gravina. *Arch. Gen. de Med.* 3me et Nouvelle Serie, T. 6, 1819, p. 360.

Chevers. *Lond. Med. Gaz.*, 1846, 2 cases.

Marshall. *Lond. Med. Gaz.*, 1830, Vol. vi. p. 886.

Louis. *Arch. Gen.*, 2me Serie, T. iii. p. 331, Obs. 9. 1823.

² Farre on Malformations, p. 24. Case of Sir A. Cooper.

Hunter. *Med. Obs. and Enq.*, Vol. vi. p. 299. 1783. Case 2.

Pulteney. *Med. Trans. of College of Physicians*, Vol. iii., 1786, p. 339.

Gregory. *Med. Chir. Trans.*, Vol. xi. p. 296.

Bertody and Prof. Dunglison. *Phil. Med. Ex.*, 1845. Quoted in *Dublin Journal*, Vol. xlviii., 1845, p. 300.

³ Cases of Holmstead and Louis.

⁴ Case of Graves and Houston.

⁵ Alexander's Translation, Letter 17, art. 12 and 13, vol. i. p. 435.

⁶ *Med. Obs. and Enq.*, Vol. vi. p. 299.

however, the publication of these cases, the very obvious views advanced were lost sight of, and, for many years, very crude notions prevailed, both as to the causes and effects of the imperfect closure of the foramen ovale, till very recently, the earlier opinion has been revived and claimed as original, by at least two writers in this country, and by one or more on the Continent.

From the peculiar form of the ductus arteriosus, and from its cavity being still pervious for some distance, it is probable that the vessel had continued to convey blood to the lungs for a considerable period after birth. The temporary arrest of the process of closure or the permanent patency of the duct, which obtains in a considerable number of these cases, must, equally with the persistence of the foramen ovale and of the aperture in the interventricular septum, be ascribed to the original contraction of the pulmonary orifice. To the same cause, and not to the communications between the auricular and ventricular cavities, must also be referred the production of the most characteristic symptom of these cases during life, the cyanosis.¹ When, as in the present instance, this symptom appears in early infancy, its development probably marks the period of partial or complete occlusion of the ductus arteriosus. On the contrary, when it is not observed till the patients have attained the ages of five, eight, twelve or fourteen years (as in cases on record), the original malformation must have been slight, and becomes productive of serious disturbance either from the results of after disease, or from a fuller pulmonary circulation being demanded, with the progress of growth, than the rigid orifice is capable of transmitting.

That the importance of these cases is referable to the obstruction to the circulation through the lungs, is evinced by the relative duration of life under various degrees of contraction of the pulmonary orifice. Thus, of 22 cases in which the pulmonary artery was entirely absent, or in which its orifice was impervious, and there existed various means of compensating pulmonary supply, 10 died within seven weeks of birth, 6 at periods varying from five to eleven months, 3 between fifteen months and two years, and 3 only survived that age. Of 13 cases of great contraction of the pulmonary artery, where the symptoms had existed from birth, or supervened during early infancy, and where no accessory pulmonary vessels existed, the mean duration of life was $6\frac{1}{2}$ years, and four persons only lived to between ten and thirteen years of age. On the other hand, of 15 cases where the contraction was to a comparatively slight degree, and the circumstances were otherwise

¹ This explanation of the cause of the blue discoloration of the surface was first suggested by Morgagni in the report of the case before referred to. It has since been ably advocated by M. Louis (*Arch. Gen. de Med.* 2me series, t. 3, 1823), and may be regarded as established by the recent memoir of Dr Stillé. (*American Jour. of Medical Science*, vol. viii. 1845, p. 25.)

similar, the average age at death was $13\frac{1}{2}$; 6 persons died between the ages of ten and twenty, and 4 lived to between twenty and twenty-three years of age. Notwithstanding these general results, life has, however, been occasionally much prolonged in cases where the amount of blood capable of being transmitted through the lungs must have been extremely small. Two very remarkable cases of this description have recently been related by Dr Chevers,¹ which occurred in the practices of Dr Babington and Dr T. Chambers. In these, the pulmonary artery was merely rudimentary, and its orifice completely impervious; yet the circulation through the lungs had been so efficiently maintained by other channels, as to allow the continuance of life for nine or ten years. Dr Ramsbotham has related a similar case, in which the patient attained the age of sixteen years, and died not from the direct effects of the malformation but of phthisis. In cases recorded by Farre, Hunter,² and Pulteney, in which the contraction of the pulmonary orifice co-existed with imperfection of the interventricular septum alone, the patients survived to the ages of $9\frac{1}{2}$, 13, and 14 years; and in others related by Morgagni, Craigie,³ Spitta,⁴ and Lallemand,⁵ where the ventricular septum was entire, but the foramen ovale largely open, life was prolonged to 16, 20, 40, and 57 years respectively.

ARTICLE III.—*Case of Traumatic Tetanus, successfully treated with Tobacco internally.* By Mr J. D. PRIDIE, one of the Surgeons to the Stockton-on-Tees Dispensary, and formerly Resident Medical Officer, Royal Edinburgh Lunatic Asylum.

ANN PRESTON, aged 44 years, employed at the Glue Factory in this town, on the morning of the 21st October last, while in the act of hanging up her bonnet, overbalanced herself and fell a height of about five feet, her left arm coming in contact with a large nail in the wall. On examination, within an hour afterwards, I found a lacerated wound of about an inch in length on the anterior and inner surface of the fore-arm, over the upper part of the ulna; the motions of the elbow-joint were not affected, and on supinating or pronating the arm she did not complain of more pain than might be expected from an ordinary wound of a similar size. She described herself as having been quite stunned from the fall, and that

¹ See Dr Chevers' elaborate memoirs, in course of publication in the Medical Gazette. I have to acknowledge my obligations to Dr Chevers' papers in collecting the materials for the calculations given above.

² There is some uncertainty as to the precise age of Dr Hunter's patient. I have given that stated in the account of the case; but at the end of the volume there is a plate referring to the description, where the age is stated to have been eleven.

³ Edinburgh Med. and Surg. Journ., vol. lx. p. 205.

⁴ Medico-Chir. Trans., vol. xviii. 1846.

⁵ Gintrac, sur la Cyanose Obs., 52.

the pain which she felt "*all over her*" continued several minutes, and left her quite "*benumbed.*" There was very little blood lost from the part. I brought the edges of the wound together with strips of adhesive plaster, and applied a bandage over the arm, retaining it in the bent position.

The sore went on well, filling up with healthy granulations till the 29th October, when these began to look flabby and pale with increased secretion. A lotion of sulphate of copper was applied, and as the bowels were confined, pills of calomel, extract of colocynth and elaterium were ordered, which acted freely.

November 3d.—No evacuation from the bowels during the last two days. Feels very uncomfortable, and has great difficulty in swallowing. Pulse weak. Repeated the pills with elaterium and a mixture of sulphate of magnesia, to be taken every two hours.

November 4th, 10 A.M.—Has taken all the pills and mixture without any effect on the bowels. Complains of severe pain in the head, back, over the stomach, and in the left arm. The mouth is so far closed, that in endeavouring to protrude the tongue, the point of it only can be observed. The neck, back, inferior extremities, left arm, and hand, are quite rigid, while the right arm is hardly affected. The whole surface is moist and cold, the action of the heart and the respiration is slow and languid, and when she attempts to swallow, the convulsive efforts are most distressing. As the bowels had not been acted on, I gave her three drops of croton oil in a little sugar and water, and repeated the mixture of sulphate of magnesia to be taken every hour.

1 P.M.—No evacuation from the bowels. The opisthotonos and the intensity of all the symptoms have increased, and during the paroxysms, which occur with intervals of about ten minutes, there is excessive difficulty of breathing, and most excruciating pain, with great increase of the muscular rigidity. Watson Alcock, Esq., and Dr Whiteside, now visited the patient with me, and we agreed to exhibit tobacco internally. Thirty grains of leaf tobacco were infused in nine ounces of boiling water for half an hour; of which eight ounces were poured off clear, and half an ounce was ordered to be given every one, two, or three hours, according to its effect.

8 P.M.—The bowels were freely moved about seven o'clock, immediately after taking the third dose. She says the pain is less severe during the paroxysm, but otherwise no change. The sickness and exhaustion produced by the second dose was so great, that it was discontinued for three hours.

November 5th, 9 A.M.—Has slept about four hours at intervals. The tobacco was twice omitted during the night, on account of the excessive exhaustion which it produced. The opisthotonos is more acute, the forehead has a wrinkled appearance, and the expression of countenance is sharp and anxious; the pain, however, is less severe.

5 P.M.—The intensity of all the symptoms appears increased, and

the jaws are so firmly closed, that even the extremity of the tongue cannot now be seen. To continue the medicine every four hours during the night, which can now only be swallowed by putting a small quantity at a time within the lips, and allowing it to ooze through the teeth.

November 6th, 10 A.M.—Immediately after taking the medicine early in the morning severe sickness and vomiting came on, which continued about three hours; since then she says that the pain has left her head and back; there is less rigidity, and the paroxysms, which are not so severe, occur at longer intervals; she speaks more distinctly, and can swallow easier. The bowels were freely moved during the night, and she had several hours of quiet sleep.

The tobacco to be increased to $\mathfrak{z}\text{ij. ss.}$ to the nine ounces of water, and half an ounce given as before every two or three hours.

7 P.M.—The wound and the left arm have again become painful. To have it well fomented with hot water every three hours, and the arm enveloped in a poultice of equal parts of linseed dust and oatmeal. Bowels open. To continue the medicine every four hours during the night.

November 7th, 10 A.M.—Had an uneasy night. The medicine to be continued every two hours during the day.

7 P.M.—The arm is less swollen and painful. The countenance is rather cheerful. Has taken several times to-day arrow-root and beef-tea with a portion of wine and brandy. The tobacco has now little effect in producing nausea and exhaustion. The bowels are confined. A solution of sulphate of magnesia to be taken every two hours in a cupful of barley water, and to continue the tobacco every four hours.

November 9th, 10 A.M.—Has had an uneasy night and no sleep; the pain in the head and over the spinal column and breast has returned. The jaws have again become so firmly contracted, that she speaks less distinctly than she did two or three days ago. Bowels confined. An enema of twelve grains of tobacco, infused in thirty ounces of water, was administered, which procured a full evacuation, and somewhat relieved the pain at the lower part of the back. A large mustard plaster was applied over the back, and allowed to remain on for two hours. The tobacco was now increased to $\mathfrak{z}\text{j. gr. x.}$ infused in nine ounces of boiling water, and half an ounce given, as before, every one to three hours. At bed time to have a draught, with $\mathfrak{z}\text{ij.}$ of tinct. of opium.

November 10th, 10 A.M.—Passed a better night, and slept several hours; complains of pain only in the back part of the neck, where the plaster did not reach; over this a mustard plaster was applied.

9 P.M.—The countenance is again more cheerful, and says that she is now quite free from pain. The bowels are still confined. An enema of soap and tepid water has been administered without effect, and a powder containing ten grains of calomel and the same of jalap, to be taken immediately.

November 11th, 10 A.M.—Has had a restless night—the powder (only a part of which could be got into the mouth) has not operated. Complains of pain, more especially over the bowels, and at the lower part of the back—is only able to open the mouth, so that the extreme point of the tongue can be seen. An enema of twelve grains of tobacco, infused in a pint of boiling water with eight drops of croton oil, was administered.

7 P.M.—The injection came away only slightly tinged, and she was ordered four drops of croton oil in a little sugar and water at noon. The bowels were twice moved at 2 P.M. At present feels easier.

November 12th, 10 A.M.—Bowels moved three times during the night, which disturbed her a good deal, but continues free from pain.

7 P.M.—I found her asleep with the mouth partly open, and introduced a piece of wood as a wedge. To have a draught with tinct. of opium at bed time.

November 13th, 10 A.M.—Slept several hours—takes arrow-root, beef-tea, port wine and brandy, with relish. Continue the tobacco.

7 P.M.—Swallows better, but the jaws are still so much closed that only the apex of the tongue can be observed. During the last two days the perspiration has been so profuse as to make her feel very uncomfortable. The catamenia have appeared to-day.

November 15th, 2 P.M.—The spasmodic contractions have again become more severe, which she attributes to the tobacco being omitted, as it was accidentally for about seven hours. To be continued every two hours.

8 P.M.—Complains of “cramp” flying all over her, continuing a minute or so in one part, and then shifting to another. She has taken a variety of liquid food to-day, which she now swallows tolerably well. The teeth can be so far separated that a spoon can be introduced.

November 16th, 7 P.M.—Complains of the “cramp” still causing her uneasiness. Gave her 100 drops of tincture of opium. Bowels confined. To have a draught, containing four drops of croton oil, to be taken early in the morning if required.

November 17th, 8 P.M.—Since taking the opiate last night, has continued free from spasmodic contractions. As there has been no evacuation from the bowels, ordered her three powders, each containing ten grains of jalap and half a grain of extract of elaterium. One powder to be taken every two hours, if required.

November 18th, 1 P.M.—The powders have not operated. Five drops of croton oil were rubbed over the abdomen, but without effect at 11 A.M., and an enema of tepid water, with ten drops of croton oil, was administered, which procured one slight evacuation.

8 P.M.—Another enema of tepid water with soap, was administered, and repeated after an interval of a few minutes, which very freely relieved the bowels. The tobacco to be omitted, and ordered

her a mixture to be taken every four hours during the day, each dose containing two grains of carbonate of ammonia, and to have an opiate at bedtime.

November 26th.—Since the former report, she has gradually improved, and the bowels have been regulated by enemata. A vesicular eruption appeared on the chest and arms two days ago; it, however, causes her very little uneasiness. The carbonate of ammonia was now discontinued. To continue the opiate at bedtime.

December 2d.—Complains of a return of the spasmodic contractions, from which she suffered fourteen days ago. Ordered her a draught, containing tincture of opium ʒj. to be taken every six hours, if required; and a mixture, composed of infusion of gentian and carbonate of ammonia, to be taken three times a day.

December 3d.—The anodyne draught relieved the “cramp.” There is a good deal of œdema of the inferior extremities.

December 12th.—Since last report, she has taken a medicine, containing nitrate and super-tartrate of potass, which has acted freely on the kidneys, and the œdematous swelling has nearly disappeared. Her general health is much improved. Except in the ring and middle fingers of the left hand, where a slight degree of contraction continues, all tetanic symptoms have left her. The left arm looks attenuated, and she complains of uneasiness on supinating the arm. The sore is reduced to a small prominence, about the size of a barley-corn, to which the lunar caustic was applied. The face still retains, in a slight degree, that peculiar corrugated expression, which it acquired at the commencement of the attack.

December 18th.—The œdema of the extremities has now quite disappeared, and the sore is healed over. In appearance, she is a good deal changed, and looks several years older than at the time of the accident. The bowels keep regular, and she feels herself gradually getting stronger.

December 28th.—She is very much improved since the former report, and the peculiar expression of countenance has a good deal disappeared. In the middle finger of the left hand, there is still a slight stiffness, and on gently extending the finger, she complained of a feeling of uneasiness, stretching up the arm to where the wound was; in other respects she is so far well, as to have resumed her usual household duties.

This person, when very young, had been subject to chorea, for which, after her medical attendant had discontinued seeing her, she took, for upwards of ten years, large doses of opium daily. This she relinquished about sixteen years ago. For many years her bowels have only been moved about once in five or six days, and then only in consequence of her taking powerful purgatives. In other respects she has enjoyed good health, and is rather inclined to be corpulent, and of a nervo-lymphatic temperament.

The action of the tobacco appeared to consist chiefly in producing a most powerful depressing effect on the nervous system, which relieved, for a time, the most intense spasmodic contractions. Instances are related where recovery followed the exhibition of alcohol in this disease; and I may mention that, on one occasion, when the pain and other symptoms were very severe, a tumblerful of spirits and hot water was administered, and during the continuance of the exhilaration which it produced, there was a marked alleviation of the patient's sufferings, and relaxation of the muscular rigidity.

ARTICLE IV.—*Contributions to Pathology and Rational Medicine.*

By JOHN HUGHES BENNETT, M.D., Lecturer on Pathology and the Practice of Physic, Director of the Polyclinic at the Royal Dispensary, Edinburgh, &c.

NO. VI.—*On Exudation.* PART II.—*Its Development (continued).*

II.—DEVELOPMENT OF THE EXUDATION INTO NORMAL TISSUES.

NOTHING is more common than to observe that the tissues or organs of the body, have increased in size disproportioned to the rest of the body. The line which separates health from disease in this case is not to be determined. Exercise, within certain limits, may cause the size of particular parts to be relatively increased, as in the legs of the dancer, and arms of the blacksmith. In these cases, however, such enlargement is consistent with health. A blow on the breast, on the skin, or over a bone, may cause these parts slowly to enlarge, inducing swellings, which may produce inconvenience from their size, or from their pressure on neighbouring nerves. Morbid growths are thus occasioned. Again, the heart, liver, or other internal organ, may be augmented in size, wholly or in part, and its functions thereby be deranged, and a diseased state produced. In this manner, no tissue or organ of the body is exempt from more or less increase of its extent and magnitude, and there are none, consequently, which may not occasionally be considered as morbid or pathological.

This increased growth of tissues may assume various forms. The organ or structure may gradually become enlarged in whole or in part, still maintaining more or less of its original shape or function, constituting *hypertrophy*. Membranes may become preternaturally thickened, causing more or less *induration*, whereby the movements of parts may be affected, or the calibres of hollow viscera may be diminished, producing *stricture*. The results of the healing process may give rise to new growths exactly resembling those

previously existing in the body, as in *cicatrices*, *callus*, &c.; or, lastly, such growths may assume the form of *tumour*.

Again, not only may each individual tissue be hypertrophied, but sometimes the increase of one structure, by pressing on another, may cause the atrophy of this last. Thus, in cirrhosis of the liver, when the areolar tissue is greatly thickened, the corpuscular structure is diminished, so that the organ as a whole becomes smaller, or is atrophied. In the same manner, the accumulation of fat in the ultimate cells of the liver or kidney causes atrophy of their other contained tissues, although the organ as a whole may be enlarged. In this manner hypertrophy of one tissue, and atrophy of others, occurring in a particular structure or part, constitute many of those special diseases which we intend subsequently to describe.

Our first object will be to describe the effects of hypertrophy, or increased growth of each tissue, separately, although, from the circumstances just mentioned, it must be clear that changes in one structure cause more or less alterations in others.

EPIDERMIC AND EPITHELIAL GROWTHS.

The epidermic and epithelial cells are continually thrown off from the skin and mucous membranes, where new ones are as continually formed. Numerous circumstances may arise which induce their formation in greater numbers, or their accumulation in particular parts. Under these circumstances they may soften and give a morbid character to fluids, as that of the urine, or they may become indurated, causing thickenings or swellings on the mucous surfaces, callosities, or tumours of the skin. Structures composed of epidermic growths, as hair or horn, may become excessive, or arise in parts which are unusual. Lebert was the first to point out that many of the tumours hitherto called cystic, fibrous, and even cancerous, belonged to this class of growths. In all cases, they consist of an increased number of epidermic or epithelial cells, more or less compressed together, frequently united by filaments of fibrous tissue, and supplied by blood vessels. They often undergo a process of softening.

a.—*Epidermic Growths*

Comprehend those formations on the skin so well known as *corns*, *callosities*, *warts*, *ichthyosis*, *hairy and horny productions*, &c.

Corns and Callosities consist of a local hypertrophy of the epidermis, composed of numerous epidermic scales condensed into an indurated mass. The corn is a distinct rounded or acuminate tumour, varying in size from a barley-corn to that of a pea, most commonly surrounded by indurated epidermis. On examining a thin section, under high magnifying powers, it at first appears irregularly fibrous, but on the addition of acetic acid, the fibres are resolved into the grooves between epidermic scales, each of which has

its distinct nucleus. Occasionally these cells soften and separate from each other, constituting the soft corn. Callosities of the skin exactly resemble corns in structure, but are diffused over a greater surface.

Both corns and callosities are occasioned by undue pressure upon any part of the skin. The pressure irritates the capillaries, causing them to pour out an increased exudation, which is transferred into the normal structures of the part. To a certain extent they protect the delicate nervous filaments below. At other times, from their bulk or hardness, they cause increased pain whenever the pressure is modified or increased. Corns are common on the feet from undue pressure of the shoe; callosities on the knees of housemaids, on the hands of handicraftsmen, sempstresses, &c., or in any other portion of the surface exposed to pressure. The cure consists in removing the cause. We have frequently observed, that during an attack of fever and the subsequent convalescence, all the corns and callosities have disappeared from the feet, having "grown out," as it is called. Changing the shoe or bootmaker, or obtaining another last, has been known to remove them.

Condylomata and *warts* are also, for the most part, composed of epidermic cells condensed together. The wart consists of tumours of a papillary form, varying in size, and occurring under circumstances where pressure does not take place. They appear to be constitutional, or associated with peculiar states of the body. Thus condylomata and warts are frequently found round the margin of the anus, vulva, and penis in syphilitic individuals. Warts, assuming the form of cauliflower excrescence, often arrive at a large size in such situations. We possess a specimen of warty excrescence, removed from the vulva, weighing several pounds. They frequently form on the hands of young individuals, and are frequently found on other parts of the body, growing without any obvious cause, and independent of a constitutional disease.

These tumours, when closely examined, seem to be made up of a congeries of papillæ, sometimes flattened at the top, so that they cannot be separated; at others, presenting fissures or sulci which lead down to a common stalk. Sometimes the papillæ are small and rounded; at others, elongated and enlarged at their extremities. The tumours thus formed may be only the size of a pin's head, or may be the size of a human head. In the latter case the central portions seem to consist of a fibrous structure, probably an hypertrophy of the dermis, which is supplied with blood-vessels. Their surface sometimes is smooth, resembling thickened epidermis; at others, is lobulated, composed of rounded groups of papillæ, resembling externally a cauliflower. These tumours, when small, are almost wholly composed of epithelial scales, which assume a square or elongated form, their nuclei being for the most part very distinct. In the larger growths the surface is similarly composed, but in-

ternally we find more or less areolar tissue, supplied with blood-vessels. On snipping off a small isolated papilla from such a tumour, and examining it entire, it presents a conical or round projection, covered with epidermic scales, as in Fig. 7.

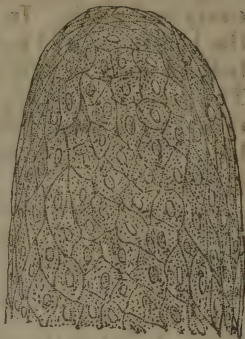
These tumours frequently ulcerate on the surface, and, under such circumstances, may give rise to purulent and ichorous discharges. Lebert considers that many tumours of the lip, which ulcerate, and which have been considered cancerous, are only epidermic growths. He explains the frequency of their cure by excision on this supposition. We found a portion of the softened part of such an epidermic tumour to resemble the appearance represented in Fig. 8.

The *Verruca Achroecordon* is a peculiar epidermic tumour, furnished with a central canal, through which blood-vessels ramify abundantly to all parts of the tumour. The central parts of such tumours are composed of fibrous structure; externally they consist of epidermic scales, arranged concentrically round the central vascular part. If cut into, this gives rise to great hemorrhage. (*Vogel.*)

The *scaly skin diseases* must be classified among epidermic growths. Accumulations of epidermic scales, upon a reddened, and indurated surface, constitute their characteristic features. In *psoriasis* they are gathered together in considerable masses. In *pityriasis* the scales are smaller, are more easily separated from the surface, and frequently associated with minute cryptogamic vegetations. It has been lately stated by Mr Erasmus Wilson, that *ichthyosis* consists of inspissated sebaceous matter. Without denying the correctness of this as regards some forms of the disease, we feel satisfied, from numerous demonstrations, that this view is not universally applicable.

Hairy formations.—Great varieties exist in different individuals regarding the amount of hair on their body. Some men have been known to be as hairy as certain of the lower animals. Patches or groups of hair may frequently be seen scattered over the surface in parts usually smooth, seated on a somewhat indurated base. These constitute a form of so called moles on the skin. Hair has been

Fig. 7.



The summit of a Papilla, from an epidermic growth, the result of a burn, removed by Dr Duncan. Each papilla consisted externally of numerous epidermic scales, distinctly nucleated, compressed together. Internally it was composed of fibrous vascular tissue.

this gives rise to great

Fig. 8.



Softened epidermic tumour from the lip.

found on the surface of the mucous membrane, and even in the lungs. It is common within encysted tumours, especially of the ovary and testis. In several such cases we have found the root of the hair implanted in a follicle, at others loose, with the roots of a bulbous form exactly resembling those on other parts of the body. The point is generally somewhat truncated, presenting at its extremity two or more fibres, from the longitudinal splitting up of the hair. Their length varies from one quarter of an inch to several inches.

Horny productions.—Under this head may be classed the prominent growths in some forms of ichthyosis; tumours resembling warts, but so indurated as to resemble horn, and true horny excrescences growing from the surface.

In some forms of *ichthyosis*, the growths stand out as distinct spines, broad on the surface, narrow at their insertions, like columns of many sides, accurately fitting to their neighbours. *Horny tumours* occasionally occur, varying in size from a bean, or extending over a space the size of half-a-crown. We possess such a tumour in our collection. Many cases are on record of true horn having grown from the surface, especially from the head, originating in some sebaceous follicle. They have grown several inches long. On making a section of these horny productions, they are found to be identical with the structure of true horn in the lower animals, or with that of the nails on the hands and toes. They consist of condensed epidermic scales, which, on the addition of acetic acid, assume all the characters of such structures.

b.—Epithelial Growths.

Epithelial growths are essentially composed of an accumulation of the epithelial cells covering the mucous membranes. They constitute various thickenings, and the polypi so common to the mucous membrane, in the nose, intestinal tract, and uterus. According to Lebert, staphyloma of the eye also belongs to this class of growths.

Simple hypertrophy, or thickening of the mucous membrane, may occur on any part of its surface, and extend over a space more or less large. We have examined many such circumscribed thickenings, and found the epithelial layer increased from accumulation of cells, sometimes combined with hypertrophy of the cellular or muscular coats below.

Polypi are tumours varying in consistence, sometimes being soft, fleshy, and easily torn,—at others, of considerable hardness. For the most part, they constitute prominences on the mucous membrane, to which they are attached by a neck, which may be broad or narrow. Externally, they are covered with mucous membrane, more or less hypertrophied and thickened; internally, they are composed of a tissue more or less fibrous, like the warty excrescences and condylomata of the skin, and are richly supplied with

blood-vessels. Like them, also, they may ulcerate, which ulceration, however, is commonly attended with hemorrhage. They vary in size from that of a barley-corn or a bean, to that of an egg or orange. They not unfrequently exist of the latter size in the uterus.

This structure resembles those of epidermic tumours, consisting of a layer of epithelial cells, condensed or compressed together, entirely mingled with, or wholly consisting of, fibrous tissue, more or less richly supplied with blood-vessels.

They only cause inconvenience by shutting up cavities, as in the nose, or inducing hemorrhage, which very often occurs to a dangerous extent, and, by its frequent repetition, reduces the powers of the constitution, bringing on anemia. The treatment consists in their extirpation, by twisting them off with forceps when they can be reached by that instrument, or embracing their necks in a ligature, so as to cause death and sloughing of the growth.

Staphyloma was carefully examined by Lebert, in a case where the morbid part was excised. He found the cornea to be composed of condensed scales resembling those of epithelium or epidermis.¹

FIBROUS GROWTHS.

The pathological formation of fibrous growths is the most common and universal which occurs in the body. We have previously seen (Contribution V.) that the coagulation of liquor sanguinis often occurs in the form of filaments, which become more and more dense. At other times cells are formed, which elongate, become fusiform, split up, and so produce fibres in the manner described by Schwann in healthy tissues. In these two ways, there may be produced all kinds and forms of fibrous element, from the finest and most delicate areolar tissue, to one resembling in consistence ligament or fibro-cartilage.

One of the most common forms of pathological fibrous tissue is that of *cicatrix*, which is generally produced in the same manner in every tissue and organ. The exudation in such cases is partly transformed into filaments, and partly into pus. The former are in connexion with the deep-seated tissues and capillaries, and are covered and protected by the latter. On examining a fungous granulation on the surface of a wound, it may be seen to contain round, oval, caudate, and fusiform cells, in all stages of their development towards fibres. As these increase in amount and become approximated, the formation of pus gradually ceases. At length the new growth reaches the surface of the healthy tissue, contracts, causing more or less puckering of the surrounding structures, and becomes dense like ligament.

A second form of pathological fibrous growth is the result of chronic exudation on serous membranes. The white patches so frequently seen, more especially on the pericardium, pleura, and peritonæum, are owing to this cause. Occasionally such membranes

¹ Pathologie Physiologique, tome ii. p. 17.

are united by bands of firm fibrous tissue, or closely united and hypertrophied into a dense, white ligamentous tissue, upwards of half an inch thick, as may frequently be seen in cases of chronic phthisis pulmonalis.

A third form of pathological fibrous growth is seen in an increase of the areolar tissue of the skin, or as it occurs in various organs. Thus we have seen peculiar thickening and indurations of the skin, owing to this cause in the adult. It is very common in the hide-bound skin of certain fetuses. Atrophy of parts may thus arise. Thus muscle also may be converted into a ligamentous substance. So called cirrhosis of the liver, lung, and kidney, are owing to a similar cause.

The areolar tissue of mucous membrane often increases, causing stricture and diminution in the calibres of hollow viscera, as in the urethra, and in the alimentary canal. We have seen the coats of the stomach above an inch thick from this cause, entirely independent of cancerous formation.

A fourth form of pathological fibrous growth is that of tumour.

Under the head of fibrous tumours must be classed a number of growths, hitherto denominated sarcoma and neuroma, as well as those usually called fibrous. They all consist of a fibrous structure, in different stages of its development, the softer and more vascular forms being such, even when the fibres have not yet completely passed into the perfect development of fibres. For this reason they have been made to constitute a distinct group by Lebert, under the name of fibro-plastic tumours. Such growths, however, may always be seen passing into true fibrous tissue. In some, whilst one part of a tumour may be called sarcomatous, or fleshy, another is truly fibrous. The difference is only one of development, and cannot therefore constitute a good ground of distinction. Other kinds of fibrous tumours resemble tough ligament and fibro-cartilage, presenting all kinds of intermediate degrees of conversion between the areolar and elastic tissues. Fibrous tumours, therefore, may be divided into, 1st, sarcomatous; 2d, desmoid; 3d, chondroid; and 4th, neuromatous fibrous tumours.

Sarcomatous Tumours.—These tumours are either spherical, or more or less lobulated (pancreatic sarcoma of Abernethy). The first are of the consistence of muscular tissue, or very soft cartilage. On section, they present a smooth or finely granular surface. Their colour differs from a yellowish white, to a rose-pink or deep red, dependent on their amount of vascularity. Occasionally a section presents different colours, the external portion being more vascular than the internal, or it is more or less mottled, the red tint alternating with the yellow. At other times the section presents several ecchymotic spots, varying in size, caused by extravasation of blood from the capillaries. Owing to the vascularity of these tumours, there is a disposition to ulceration, and breaking down of their substance, with formation of a purulent fluid.

These tumours are generally surrounded by a distinct cyst. They frequently originate in the cellular tissue, and are commonly found in fibrous and osseous structures. In the latter case they have received the names of osteo-sarcoma, although many tumours so called, are, in point of fact, of a cancerous nature. According to Lebert, the fungus of the dura mater belongs to this class of tumours. For the most part, they increase in size slowly, only causing inconvenience from their size, or by pressing on neighbouring nerves and tissues. Owing to this pressure, they may induce absorption or ulceration of neighbouring parts.

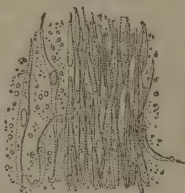
Not unfrequently these tumours are more soft and lobulated, and have frequently been mistaken for encephaloma. The lobules vary greatly in size, and present externally a papillary, or cauliflower character, frequently resembling the pancreas, and hence the name given to them by Abernethy. Occasionally the lobules are surrounded by a layer of areolar tissue, more or less dense. They are for the most part, of a greyish, yellowish, or rosy colour, their tint varying with their amount of vascularity.

These tumours are also found in many places richly furnished with cellular and fibrous tissue, as below the skin. They are not unfrequent in the mamma, where their diagnosis from scirrhus constitutes one of the nicest points of diagnosis in surgery. They constitute small mushroom like growths on the conjunctiva (*Lebert*), and may destroy the eye from the pressure caused by their enlarged size. We have found many granulations on the valves of the heart, to consist of sarcomatous or fibrous structure. Many granulations on the surface of wounds approach them in nature.

The minute structure of these tumours is essentially fibrous, but many of the fibres are seen to be made up of congeries of fusiform cells closely applied together. These cells are of a spindle shape, varying in length and breadth, for the most part distinctly nucleated. Many of them may be seen branched at their extremities, and passing into fibres, according to the mode of development of fibrous tissue described by Schwann. In some, the nucleus will be found to have disappeared. Other of the cells will be found round or oval, or only slightly elongated. These are younger growths. In the same tumour all these different stages may be observed. In the softer parts, isolated cells and nuclei abound, whereas in the harder and denser parts, the development into fibrous tissue will be found more perfect.

Desmoid fibrous tumours. These tumours are generally of a white colour, more or less tough and elastic, resembling the well known

Fig. 9.



Fibrous tissue composed of fusiform cells from a sarcomatous tumour of the kidney.

Fig. 10.



Fusiform cells, with corpuncles from hypertrophy of the stomach.

structure of the dermis. This, indeed, is not so apparent in examining the comparatively thin human dermis; but on looking at that of some of the larger animals, and more especially that of the whale, the analogy in structure at once becomes evident. These tumours are of a rounded or oval form, frequently embedded in a cyst, composed of the indurated structures in which they lie. They are of considerable density, varying from that of tendon to that of ligament or fibro-cartilage, and on section present numerous white glistening fibres, intimately interwoven together, or arranged in bundles constituting circles, or loops intercrossing with each other. Occasionally they have a bony centre or nucleus. Their colour is generally white, but occasionally they present a yellowish tinge. They are for the most part not very vascular, although there is great difference in this respect, some approaching the pinkish colour of sarcomatous growths, and others being of dead white and of extreme density, containing scarcely any vessels. They vary greatly in size, from that of a pin's head to a volume measuring several feet in circumference. We have in our collection, the half of a fibrous tumour which measured four feet in circumference; and in the museum of the College of Surgeons is a model of one in a case of Dr Macintosh's, which was much larger.

These tumours may be situated in various tissues and organs, as in the subcutaneous cellular tissue, in the mamma, and uterus, where they are common, and submucous tissue. When developed in the latter position, they push the mucous membrane before them, which yields with them. In this way they grow outwards, and frequently form one kind of the so called polypi. At other times they grow towards the serous or internal cavity, pushing the membrane before them in the same way, so that it ultimately constitutes a neck or pedicle, by which they are attached. Such pediculated fibrous tumours are frequently found in the peritoneum, growing from the uterus. Occasionally the pedicle breaks across, and the tumour becomes free in the serous cavity. We possess a fibrous tumour with a bony nucleus, found loose in the cavity of the peritoneum. It was found in an anatomical subject by Dr John Reid, and, at one point, has the indentation well marked where the pedicle had been attached. To the same cause are owing the small fibrous, oval or round bodies, called loose cartilages, found in the joints, more especially that of the knee, and those found in the veins, and denominated *phlebolites*.

The minute structure of these tumours is found to consist of fibrous tissue, composed of filaments varying in diameter from $\frac{1}{700}$ th to $\frac{1}{800}$ th of a millimetre. In the softer portions of the tumour, they can be easily separated by needles, but in the indurated portions they are so dense that this is impossible. Sometimes the filaments are more or less waved, as in ordinary fibrous tissue; at others, they are curled and brittle, as in elastic tissue.

Occasionally we find fusiform nucleated cells, showing that many

of those fibres were probably formed by development from cells. Occasionally isolated nuclei and corpuscles may also be found, as in the sarcomatous tumours; but the proportion of them to the fibrous element is always small. The bony nuclei of such tumours are composed of amorphous mineral matter, not of true bone, although Lebert says that on two occasions he has seen true bone produced. One of these is in the possession of M. Miescher of Basle.

Chondroid Fibrous Tumours.—These tumours were first accurately described by Müller, and determined by him not only to resemble cartilage in appearance, but to possess a considerable amount of gelatine, whence their name. These tumours vary in shape; on section, present a smooth, milk-white glistening colour, like fibro-cartilage, which texture they exactly resemble in their physical properties. The substance is very dense, separated with great difficulty by needles, but easily cut into thin layers. It crunches under the knife, and is very little vascular.

Its minute structure is found to consist of dense fibrous tissue, resembling the fibro-cartilage of the ear, or intervertebral substance.

The various kinds of fibrous growth now spoken of may frequently be found associated together in one tumour. Some are composed of several rounded or oval masses varying in size, and surrounded and separated from each other by a cyst, or layer of areolar tissue. The external surface, under such circumstances, is more or less nodulated. It may frequently be observed that some of these nodules are soft and pulpy,—semi-gelatinous, with a very sparing layer of fibrous tissue; whilst others may be seen more or less tough, gradually passing into a fibro-cartilaginous density, grating under the knife. Nay, even in one nodule we have frequently observed some parts of it soft and others hard, and shown that the softer parts are mostly cellular, and the harder fibrous, and that between the two there is every degree of variation.

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 14.



Structure of a lobulated fibrous tumour removed from the neck by Mr Syme. Fig. 11. Nucleated cells, varying in size, some round, others oval, caudate, and spindle-shaped. Fig. 12. The same, after the addition of acetic acid. Fig. 13. Fibres in various stages of development from a nodule of semi-gelatinous consistence. Fig. 14. Perfect fibrous tissue, from a nodule of considerable density.

M. Velpeau has pointed out a peculiar kind of growth, which he denominates fibrinous, the result of extravasations of blood. Such

extravasations coagulate, and become more or less discoloured, and ultimately yellow. We have seen several of these tumours. In the placenta they are not unfrequent, and we have frequently observed them in the spleen. M. Velpeau says they are common in the breast, and are generally mistaken for cancerous tumours. They often occur in young persons, a circumstance which proves tolerably diagnostic.

Neuromatous Fibrous Tumours.—This form of fibrous tumour is developed in the nerves, sometimes spontaneously, at others is the result of injuries, and more especially of amputation.

In the museum of the Richmond Hospital, Dublin, is a most remarkable series of preparations, taken from an individual in whom almost every nerve of the body presented knotty swellings. In some places these were developed into tumours, which varied in size from a nut to that of the human head. On examining them microscopically, which the kindness of Dr Smith enabled us to do, we determined them to consist of fibrous tissue.

A subcutaneous tumour, described by Mr W. Wood of Edinburgh, must be referred to a similar source. All these neuromas, on being minutely examined, are found to consist of fibrous texture, more or less dense, the filaments often arranged in bundles running parallel to each other, and each bundle assuming a looped form, or intercrossing with each other.

FATTY GROWTHS.

The morbid increase of fat is frequently so imperceptible that it is impossible to separate the pathological from the physiological state. Obesity may gradually increase, either locally or generally, internally or externally, so as to cause, not only inconvenience, but actual disease. Some individuals have become celebrated from their excessive fatness.

Fat may sometimes occur in masses, being only an exaggeration of the normal texture of the part, as when it collects about the heart, in the omentum, on the serous membranes, in which case the included viscera hollow in it exact models of their form. Fat may constitute masses in unusual situations, in the form of tumour.

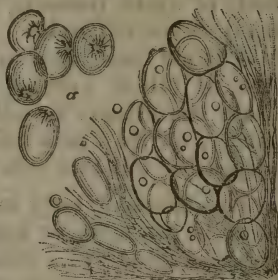
Fatty tumours vary in size, but may reach a growth weighing upwards of 30 lbs. Sometimes their surface is smooth, at others lobulated. They are of a yellow colour, resembling adipose tissue, sometimes divided into bands by white fibrous tissue. The relative amount of these two elements vary greatly in different specimens, some being soft, oily, containing few fibres, others being harder, dense, the areolar tissue preponderating. For the most part they are very sparingly supplied with blood vessels, but these abound more in the fibrous varieties. In the latter case they are liable to ulcerate, and, under such circumstances, have frequently been mistaken for cancer. Some of these growths, indeed, may

be considered as fibrous, or sarcomatous tumours, combined with an unusual quantity of fat. Occasionally they are connected with the ordinary adipose tissue of the body. We see this in the fatty tumours so common in the subcutaneous tissue. They are often surrounded by a delicate cyst or envelope; at others this is not perceptible. When the collection of fat resembles the ordinary adipose tissue, the tumour has received the name of *Lipoma*. When it is more lardaceous, some have applied to it the term *Steatoma*, in the same manner as when the substance is encysted.

The minute structure of these tumours varies according to the amount of adipose or fibrous tissue in their composition. The adipose matter is composed of vesicles of a round or oval form, more or less liable to undergo alterations in shape from pressure. They vary from the $\frac{1}{20}$ to $\frac{1}{50}$ of a millimetre in diameter; are composed of a diaphanous cell-wall, frequently including a nucleus. The nucleus is frequently round or oval, about the $\frac{1}{100}$ or $\frac{1}{120}$ of a millimetre in diameter. Occasionally it appears stellate, of a crystalline appearance, from the formation of crystals of margarine or margaric acid around it. (Fig. 15 a.) On rupture of the cell-wall the oil may be made to flow out loose, and the cell-wall puckers or shrinks up. Such collapsed cells may frequently be seen among the more perfect formations, mixed with globules of oil and fat granules. The fibrous element presents the usual appearance of filamentous tissues running between groups of the adipose cells, and being denser, and occupying greater space, according to the proportion with which it enters into the tumour.

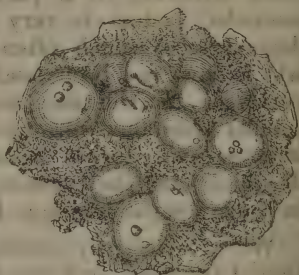
Steatomatous and melicerous fatty matter may sometimes consist principally of the cells just described, or these may be mingled in various proportions with granular matter. In some melicerous encysted matter, we have found the whole to be composed of granular matter, in which faint traces of delicate cell-walls might be observed more or less compressed together. In all such productions the relative amount of the vesicular and granular elements varies greatly.

Fig. 15.



Structure of a fatty tumour removed from the back, by Mr Syme. a, Isolated cells, showing crystalline nucleus of margaric acid.

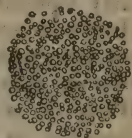
Fig. 16.



Fat cells and granular matter, from a steatomatous tumour of the ovary.

Another form in which fat may occur is that of atheroma, consisting, for the most part, of numerous fatty granules, varying in size. It may constitute the contents of cysts, or produce the entire degeneration of certain glands, especially the mesenteric and lumbar. We have frequently seen these bodies entirely converted into a dark, ochry, cheesy substance, which, on examination, was found to consist of numerous granules, varying in size from $\frac{1}{600}$ to $\frac{1}{400}$ of a millimetre in diameter. They almost entirely disappear on adding ether, leaving behind only a molecular albuminous matter. Such an appearance is common in the contents of cystic tumours, in the Fallopian tubes, and many other situations. Similar fatty granules are also found associated with most morbid formations, sometimes free, at others existing within cells. In the former case they cause the creamy or yellow looking masses, so common in soft cancer, or they may exist between pus and compound granular corpuscles, ultimate cells of the liver, kidney, &c.

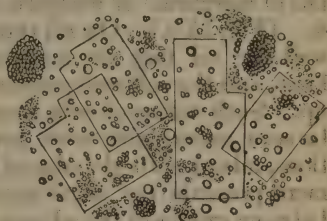
Fig. 17.



Granular fatty matter, from an atheromatous degeneration of a lumbar gland.

This granular fatty matter is often combined with crystals of cholesterine, more or less numerous. (*Cholesteotoma* of Müller.) We have found the contents of some cystic tumours almost wholly composed of the laminar plates so formed. At other times they accompany various kinds of chronic exudation. They may be commonly found in the so-called atheroma of arteries, in the cretaceous concretions, the result of chronic tubercular or other formations, and in the putty-like substance so commonly found in various organs.

Fig. 18.



Fatty granules, with crystals of cholesterine, from atheromatous deposits in the aorta.

An excess of fat may cause the entire disappearance of the usual structure of a part, and its conversion into fat. The muscular system is very liable to this fatty transformation or degeneration, which often occurs in the heart, and in muscles which have not been much exercised, owing to local disease or paralysis. In this case adipose tissue generally springs up in the cellular substance surrounding the muscular fasciculi, and by its increase and pressure upon them, causes the transverse striæ to disappear, and the whole to assume a granular appearance, as seen in the accompanying figs. 19 and 20.

We have recently examined a specimen of the fatty transformation of the heart, and found that all traces of the transverse striæ had disappeared, and that with a faint appearance of the longitudinal fibrillæ, there was associated an immense number of minute

granules, refracting light very highly, and disappearing on the addition of ether.

Fig. 19.

Fig. 20.

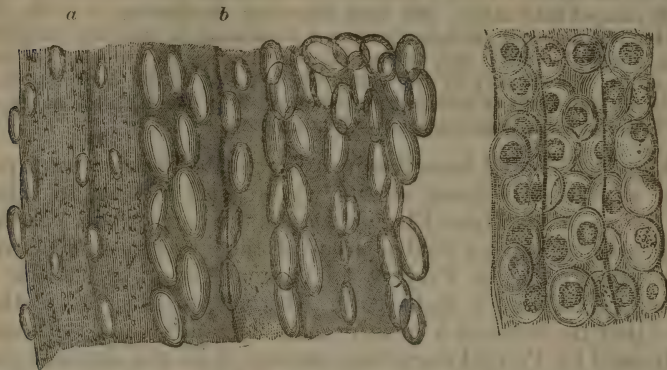


Fig. 19. Fatty degeneration of the psoas magnus muscle of a lad, who died with morbus coxarius. *a*, The muscular fasciculi, in which no traces of transverse striæ are perceivable. The longitudinal striæ are still not quite obliterated, although mingled with numerous fatty granules. *b*, Muscular fasciculi, wholly composed of minute molecules and granules, with no traces of either transverse or longitudinal striæ. *c*, Fat cells of various sizes running between the fasciculi, and encroaching upon the fasciculi.

Fig. 20. The same after the addition of ether, which has dissolved the granules, causing the muscular fasciculi to appear very transparent. The fat cells are rendered round, and somewhat flaccid; the nucleus appears deprived of fat, and made up of a congeries of granules, of a brown bistre colour.

Part Second.

REVIEWS.

Works on Physiological and Pathological Chemistry By SIMON, DAY, GRIFFITHS, REES, &c.

(Continued from our last.)

BILE.—The following observations by Dr Day, on the uses of the bile, may tend to correct a popular error.

“That the bile is not merely an excrementitious fluid, intended to remove offete matter from the blood, but that it is a secretion essential to the animal economy, was rendered almost certain by the experiments of Berzelius, and Theyer and Schlosser, which showed that the human fæces contained much too small a quantity of a substance resembling bile, to justify the idea that it is evacuated in this manner. A further proof that the bile is absorbed and not excreted, is afforded by an examination made by Enderlin, of the ash yielded by the contents of the different portions of the intestinal canal of a hare. He found that the ash from the contents of the duodenum *alone* effervesced on the addition of an acid, thus showing that the choleate of soda (which yields

the carbonate on incineration) is absorbed before reaching the jejunum. Schwann has recently established this opinion, beyond a doubt, by a series of well-devised experiments on dogs. He tied the ductus communis choledochus and at the same time formed a fistulous opening in the gall-bladder, by which the bile escaped externally. His most important conclusions are: 1st, That when the bile does not get into the bowel, its absence is generally perceptible in dogs about the third day, by a marked diminution in weight; and 2dly, That unless the channel for the conveyance of bile to the duodenum is re-established, symptoms of deficient nutrition, wasting, debility, &c., ensue, and death is the ultimate consequence."—Vol. ii. p. 26.

Although Blondlot has subsequently repeated Schwann's experiments with very different results, we are still inclined to believe that the view maintained by Dr Day is the correct one. In fact, that gentleman gives a further proof of the correctness of his view in his Report on the Progress of Animal Chemistry in the 1st Volume of Ranking's Half-yearly Abstract, p. 345. It is there stated that the fæces of a healthy man, when extracted with spirit and treated by Pettenkofer's test, did not yield the slightest reaction, whilst on previously adding a little bile to the fæces, it was perfectly developed. In cases of diarrhœa, and in the evacuation produced by calomel, this test would, however, always detect the presence of bile.

The chemistry of healthy and diseased bile has been carefully studied by Frerichs. (Day's Reports, in Vols. ii. and iii. of Ranking.) The bile in the two following cases was obtained from healthy men, killed by severe accidents.

	1.	2.
Water,.....	86.00	85.92
Solid residue,.....	14.00	14.08
Bilate (or choleate) of soda,.....	10.22	9.14
Cholesterine,.....	0.16	0.26
Margarine and oleine,.....	0.32	0.92
Salts,.....	0.65	0.79

MILK.—The fourth chapter—on the milk—contains all that is known on that subject. We must content ourselves with simply extracting the following easy method of analysing that secretion.

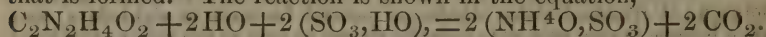
"When milk is stirred with about one-fourth of its weight of finely powdered gypsum, and heated to 212°, it is entirely coagulated; and if the whole is then evaporated to dryness, a brittle mass is obtained that is easily reducible to powder. From the powder the butter may be extracted with ether; the sugar of milk and soluble salts may be removed by hot alcohol of 0.85; while the caseate and sulphate of lime, and insoluble salts remain undissolved. The alcoholic solution scarcely exhibits any perceptible opacity on the addition of chloride of barium, showing that no error in the result is occasioned by any of the gypsum being taken up by the alcohol.

"About 100 grains of gypsum, and four times its weight of milk, answer very well. The soluble salts extracted from the milk by the alcohol may easily be determined by maceration; and since their amount is to that of the insoluble salts in the average proportion of 5 to 7, the amount of the latter may at least be found approximately, and the ascertained weight of the sugar and casein corrected accordingly. But if it be required to determine the salts

with perfect accuracy, it is best to incinerate a weighed quantity of milk, and to analyse the residue."—Vol. ii. p. 46.

URINE.—The chapter on the urine, which extends over 240 pages, is undoubtedly one of the most perfect treatises on the subject ever written. Its value is greatly enhanced by the additions of Dr Day.

In p. 526, we find a description of a new method for the quantitative determination of *urea*. It is founded on the circumstance, that if a solution of urea be heated with concentrated sulphuric acid, its amount may be determined from the sulphate of ammonia that is formed. The reaction is shown in the equation,—



The following is the best method of proceeding. The urine must be mixed with about half its weight of concentrated sulphuric acid. The mixture must be kept in a state of moderate ebullition; and when the temperature reaches 392 degrees, there ensues an evolution of carbonic acid in small bubbles. The cessation of the disengagement of gas indicates that the urea is completely decomposed. The residue, which presents a black, charred appearance, is then thoroughly extracted with water, and the solution filtered. The clear filtrate is evaporated in the water-bath, and the sulphate of ammonia treated with alcohol and bichloride of platinum.

Since urine contains salts of potash and ammonia, which will, of course, likewise precipitate upon the addition of bichloride of platinum, it is necessary to determine the exact proportion in which these salts are present in the urine under examination. For this purpose, a separate weighed portion of urine is precipitated with bichloride of platinum, and the amount of precipitate subtracted from the former. The extractive matters normally present in the urine exercise no adverse influence in determining the urea in this manner.

The following method of obtaining *hippuric acid* from human urine is given by Dr Day.

"Evaporate the urine till there is a copious deposition of salts; add strong alcohol, and place the mixture in a stoppered bottle. With the aid of a gentle heat (for instance, by placing the bottle in warm water), we ensure the solution of the urea, the lactates (if any are present), and the hippurates, in the alcohol, whilst the urates remain with the insoluble constituents. When the supernatant fluid is perfectly clear, it must be decanted, evaporated very nearly to dryness, and re-dissolved in hot water. If a stream of chlorine be passed through the aqueous solution, the urea is destroyed; and, by gradual concentration, and the addition of a little free mineral acid, we obtain crystals of hippuric acid."—Vol. ii. p. 117.

The effect of diet on the urinary secretion has been studied by many physiologists. The most trustworthy experiments are those of Lehmann, instituted on himself. The following table gives the mean daily amount of the various solid constituents during different systems of diet:—

	Mixed diet.	Animal diet.	Vegetable diet.	Non-nitrogen- ous diet.
Solid constituents.....	67·82	87·44	59·24	41·68 grammes.
Urea	32·50	53·20	22·48	15·41 ...
Uric acid	1·18	1·48	1·02	0·73 ...
Lactic acid and lactates	2·72	2·17	2·68	5·82 ...
Extractive matters.....	10·49	5·20	16·50	11·85 ...

The urine in typhus should be submitted to daily examination. Schönlein's opinion, that the urine in the regular course of typhus is at first dark and very acid, subsequently neutral, and even alkaline, and finally again becomes acid at the commencement of convalescence, is confirmed by several cases given by Simon:—

"In one case the urine became faintly alkaline on the seventh day after admission; it remained either alkaline or neutral for seven or eight days; and then became faintly acid and gradually clearer as soon as the patient exhibited symptoms of convalescence.

"In a second (very severe) case, the urine remained acid till the twenty-first day; it then became neutral, and afterwards alkaline for the space of ten or eleven days, when it returned to its normal reaction.

"In two other cases the urine became alkaline previously to the fourteenth day of the disease; in one of them the secretion was so thoroughly saturated with carbonate of ammonia, and evolved so disgusting an odour, as to be perceptible over the whole ward. This urine deposited a considerable sediment of pus or mucus, mixed with the phosphates of lime and magnesia, and effervesced briskly on the addition of an acid. In one of these cases the urine remained alkaline for fourteen, and in the other for twenty-one days, before it resumed its acid reaction. Both cases recovered.

"It is worthy of notice that a deposition of urate of ammonia not unfrequently precedes the occurrence of alkalinity and the appearance of the earthy phosphates, which, as Schönlein remarks, may be regarded as the precursors of a favourable change."—P. 246.

During the mild form of typhus prevalent at Berlin, in the year 1843, he noticed these changes in several cases, and in fact, when from being alkaline, the urine again became acid, and at the same time clear and abundant, there was scarcely any risk in giving a favourable prognosis.

The Urine in Gout.—The following observations on the urine in two cases of gout will be read with interest, as they not only indicate the chemical character of the renal secretion in that disease, but likewise show the degree to which it is modified by the administration of benzoic acid. In the first case, before the use of benzoic acid, the urea amounted to 30·16 $\frac{0}{0}$ and the uric acid to 2·14 $\frac{0}{0}$, and afterwards they amounted to 28·21 $\frac{0}{0}$ and 2·22 $\frac{0}{0}$ respectively. In the second case the urea and uric acid amounted to 26·56 $\frac{0}{0}$ and 1·66 $\frac{0}{0}$ before the use of the acid, and 26·61 $\frac{0}{0}$ and 1·59 $\frac{0}{0}$ afterwards.

These analyses are insufficient to show that benzoic acid exerts any influence on the amount of urea or uric acid. The clinical experiments of Froreip and others indicate, however, that it is a valuable remedy in various forms of arthritis.

The urine in diabetes meets with all due consideration from Simon and Dr Day. Simon quotes Henry's tables for determining the solid

constituents of diabetic urine by the application of the urinometer, and states that his own experience coincides with that of Dr G. O. Rees, in showing that the table gives tolerably accurate results. We have ourselves devoted a good deal of attention to the urinary secretion in diabetes, and having always adopted the formula of our accurate and trust-worthy friend and preceptor, Dr Christison, in preference to that of Henry, we were not a little pleased to find how thoroughly its correctness has been established by Dr Day, who has shown, by more than 200 observations, that Christison's formula gives more correct results in health and disease generally than either those of Becquerel or Henry. As Dr Day's essay appeared more than two years ago in the *Lancet*, and his conclusions have been adopted in Dr Golding Bird's excellent treatise on "Urinary Deposits," we are surprised to find that Dr G. O. Rees has not modified his opinions in the recent edition of his work.

The Urine in Syphilis.—In his observations on the urine in syphilis, Dr Day quotes a case in which Heller analysed the renal secretion of a patient, who was taking two scruples of iodide of potassium and half a grain of iodine daily. As iodine is always in a state of combination when it occurs in the secretions, this quantity may be regarded as equivalent (chemically) to 40·625 grains of the iodide. From the urine of twenty-four hours, Heller succeeded in obtaining 38·689 grains of the iodide; hence, the whole was removed by the kidneys, with the exception of nearly two grains, which were partly distributed to the saliva, sweat, nasal mucus, &c. and partly retained in the blood.

The Urine in Pregnancy.—In the early volumes of this Journal there were several papers on the peculiar character of the urine during pregnancy. We do not find any notice of them in Simon's "Animal Chemistry;" but notwithstanding this apparent oversight, we believe that, on the whole, the work we have before us contains the best account yet published, of the urine in this state. And, in connection with this subject, we may notice a slight oversight on the part of Dr G. O. Rees. At page 200, he observes that "the butyric acid has been observed but in one specimen of urine, and it is a matter of doubt, whether it be not rather an accidental than a necessary constituent of the fluid." He probably refers to the case noticed by Berzelius, but if he will turn to page 331 of the second volume of Simon, he will find that that chemist states, that in the course of twenty-four hours, a white viscid sediment was generally deposited from the urine during pregnancy, and that, on washing this sediment with water, and then treating it with alcohol and a little sulphuric acid, a disagreeable fruit-like odour, reminding him of butyric ether, was developed. And in the following page, we find that Lehmann, in experimenting on the urine of a pregnant woman, not only detected butyric acid by its odour, but actually obtained brilliant crystals of butyrate of laryta.

On the passage of medicinal and other substances into the urine—The remarks on this subject, from the pen of the editor, are deserving of an attentive perusal. We regret that we have only space for the following brief extract on the means of detecting quinine in the urine.

“Quinine, when administered in large doses, has been noticed in the urine by Piorry, Landerer, and others. The best test for its presence is the iodated iodide of potassium, consisting of four parts of iodide of potassium, one of iodine, and ten of water. The precipitate afforded by this reagent with disulphate of quinine, is very insoluble in water, is not affected by an excess of the test, and is readily soluble in alcohol. It is of a yellowish brown colour, and forms a turbidity or sediment according to the amount of the alkaloid in the urine. When the quantity is very small, there is merely an olive tint produced on the addition of the test.”—Vol. ii. pp. 338, 339.

The eighth and ninth chapters treat of the secretion of the lachrymal, Meibomian, and ceruminous glands, and the secretions of the generative organs.

The tenth chapter enters fully into the consideration of the various modifications of fæces in health and disease, and terminates with the analyses of certain vomited matters. One of the most singular points connected with faecal chemistry, is the large amount of fat discharged from the bowels in diabetes. Simon found the fat in a case of this nature, to amount to $34\frac{1}{2}\%$ of the dried fæces; the ordinary amount being, according to Percy, about $12\frac{1}{2}\%$.

The eleventh chapter treats of the component parts of the animal body,—the bones, teeth, cartilage, cellular tissue, tendons, ligaments, skin, hair, crystalline lens, arteries, veins, muscles, nervous matter, fat, and glands. We can only say of it, as, indeed, we may say of almost every part of the work, that it contains nearly every thing that is known of the subjects on which it treats.

The two last chapters are devoted to the consideration of solid and fluid morbid products, to the chemical composition of which we intend devoting another article on some future occasion.

The English Edition of Simon's Animal Chemistry is, undoubtedly, the most perfect work on the subject in this, or perhaps any language. When we compare the therein contained chapter on the Blood with the article on the same subject in Dr Copland's Dictionary, we cannot fail to be struck with the energy and perseverance displayed in this department of medicine by our German brethren during the last few years. The learned encyclopædist is distinguished for the zeal (to say nothing of the judgment) with which he collects materials for his elaborate articles; and yet, on referring to his Essay on the Blood, we do not find a single analysis of that fluid in a morbid condition; and what he tells us regarding its normal state is, in the highest degree, vague and unsatisfactory.

There were several passages in the work of Dr Rees, which we had marked for extraction or comment. The extracts must, however, be omitted, and our comments must be very brief. In the

description of the analysis of the blood (see page 27), he obtains a residue, which "consists of albumen, combined with soda." If he believes that the blood does contain such a compound, he should, at all events, have stated the views of the Giessen school on this subject. Enderlin's experiments (see page 596) seem to afford strong evidence against the existence of such a compound in the blood.

In a note to page 32, we read that "iron exists as a mere trace in serum, and, when found, is probably owing to accidental admixture with a small number of blood corpuscles. What says Mùlder on this point? In page 337 of Fromberg's translation of "The Chemistry of Vegetable and Animal Physiology," it is written that "other constituents of the blood besides hæmatin contain iron."

We cannot allow the "examination of blood supposed to contain urea" to pass without one or two remarks. In the first place, we have already shown, that the occurrence of crystals in the alcoholic extract, after the addition of nitric acid, does not afford a decisive proof of the existence of urea; and, secondly, we cannot ascertain the proportion of urea by the method given for that purpose by Dr Rees, or, indeed, by any other method we are acquainted with. Did Dr Rees never read of an experiment performed by Marchand, showing that there is a peculiar difficulty in the precise determination of this constituent?

In his observations on the probability "that bile exists in serum in its perfect state," we should have been glad to have met with something about Pettenkofer's Test; and we cannot agree with him in his statement, that "we know of no method at present of accurately ascertaining the proportion of sugar in diabetic blood." If the sugar exist in more than a mere trace, its amount may be ascertained by the carbonic acid which it yields on fermentation.

Finally, Dr Rees tells us that "the *only* compound calculus containing cystine, as a constituent, is contained in the Collection of Guy's Hospital." We like to see men take a pride in their own hospitals and their own museums, but this is really carrying the feeling a little too far. If Dr Rees had simply told us that such a calculus was to be found in that museum, he would have been conveying to his readers an interesting piece of information, but when we happen to know that such calculi have also been described and analysed by Bley, and Henry, and Yellowly, we cannot help feeling that there is an occasional laxity and carelessness in his statements, in which a writer of his acknowledged ability and learning ought not to indulge. We have already noticed one or two similar oversights. Notwithstanding these slight defects, the book is a good one; and to those who simply desire to acquire a knowledge of the manipulations requisite for the separation of the most important constituents of the blood and urine, we do not know that we can recommend a safer guide.

The work of Dr Griffith is of altogether a different character. His information is brought down to a much later date than that of

Dr Rees. We fear, however, that the extreme conciseness of his manual will render it a difficult book to those not already acquainted with the subject

We cannot conclude without expressing a wish that animal chemistry were cultivated more generally than it is. We want physiological and pathological chemists to assist in building up a solid and exact basis for the healing art. We want in this country enthusiastic young men who, like Simon and Scherer, will be content for a time to work in hospitals, analysing the solid and fluid constituents of the body, in health and disease. Such labours must inevitably acquire for them a fame and reputation, that they will find it impossible to reach by other paths. The chemical lectures at present delivered in our colleges and schools should constitute a portion of that preliminary education necessary for a proper study of all the arts and sciences; there should be reserved for the *medical* student a course of physiological and pathological chemistry, more especially brought to bear upon the explanation of the causes, signs, and treatment of disease. Such is one of the elements necessary for the cultivation of a rational system of medicine, and we look forward to the period when this great fact will be universally acknowledged. In the meantime, let us do all in our power to stimulate perseverance and talent to occupy themselves on subjects best calculated for the public good; and we are satisfied that in the present day, there is not one which is so likely to yield beneficial and important results as that of animal chemistry.

On Diseases of the Skin. By ERASMUS WILSON, F.R.S., &c.
Second Edition. London, 1847.

NOTWITHSTANDING all that has been written and published on the subject of skin diseases, it must be confessed that the great bulk of the profession is still very imperfectly informed regarding their diagnosis and treatment. We do not now allude so much to the febrile eruptions, which, from their frequency and danger, necessarily force themselves upon the attention of every medical man, as to the less alarming and more chronic affections to which the skin is exposed. And yet we have known ignorance in this department of medicine exasperate the progress of other maladies, render life miserable, destroy those social relations and ties so dear to all men, and finally ruin the reputation of more than one otherwise well informed practitioner. The cause of this must be sought for in the absence of all instruction regarding it in our large schools, and the non-existence in this country of hospitals set aside and properly furnished for the treatment of this class of disorders. There are no diseases which more require that preliminary instruction in

them should be practical, than those which affect the skin. Books and plates, after all, teach very little. For the most part they are compilations; and from the unnecessary multiplication of forms and varieties, so far from extricating the reader from the difficulties which surround the subject, only tend to increase his bewilderment and perplexity.

Skin diseases vary so much in their nature and external characters, that a classification of them is essential. No kind of description, either verbal or written, could be made without one. But here is the difficulty. Shall we choose an artificial, a natural, or a pathological arrangement? We do not hesitate a moment in our choice. For the purposes of the practitioner, that is with reference to diagnosis and treatment, we are of opinion that the classification of Willan and Bateman, as modified by Bielt, is the only one worth a moment's consideration. A natural arrangement presupposes great knowledge of the subject, and is therefore useless to the student. A pathological arrangement presupposes a knowledge of the nature of skin diseases, and this, with regard to many of them, we do not possess, and it must necessarily be faulty. On the other hand, the artificial arrangement of Willan, notwithstanding its imperfections and inconveniences, can be at once understood by, and is tolerably easy for, the practical student; and this classification, certainly rendered more perfect by the modifications of Bielt, is the one which best answers the purposes both of teacher and student, and will enable the latter to acquire a knowledge of forms and varieties more readily than any other.

Mr Wilson denominates his classification a natural one. It is founded on a mixture of anatomy, physiology, and pathology. For instance, the four great divisions refer to the anatomy of the skin. They are, 1st, Diseases of the Derma; 2d, of the Sudoriparous Glands; 3d, of the Sebiparous Glands; 4th, of the Hairs and Hair Follicles. We do not object to this primary anatomical division; on the contrary, it may be considered good, if it were possible to separate precisely the diseases belonging to each. Most of the subdivisions, however, are very unphysiological and unpathological. We are at once struck with the following extraordinary arrangement of inflammatory diseases of the derma:—

“ INFLAMMATION—

CONGESTIVE—

Specific—Rubeola—Scarlatina—Variola—Varicella—Vaccinia.

Non-Specific—Erysipelas—Urticaria—Roseola—Erythema.

EFFUSIVE—

Asthenic—Pemphigus—Rupia.

Sthenic—Herpes—Eczema—Sudamina.

SUPPURATIVE—Impetigo—Ecthyma.

DEPOSITIVE—Strophulus—Lichen—Prurigo.

SQUAMOUS—Lepra—Psoriasis—Pityriasis.

FROM PARASITIC ANIMALCULES—Scabies.”—Pref., p. xxii.

The terms congestive, effusive, depositive, and squamous inflam-

inations, are novel. Let us endeavour to understand their meaning—and, first, what are we to comprehend by a congestive inflammation? All pathologists, whilst they allow that congestion precedes inflammation, have been most careful to separate the two lesions. Does Mr Wilson affirm that a congestion, that is, an unusual distension of the vessels with blood, is an inflammation? We cannot think so. On the other hand, does he mean to assert, that there can be any acute inflammation without congestion? We hope not. Surely, then, the term congestive inflammation is somewhat contradictory. Under this head he has arranged Variola, Varicella, and Vaccinia. What, then, we should like to know, is suppurative inflammation? On turning to page 220, we are told it is characterized by the formation of pus occupying the surface of the derma, and producing an elevation of it to a limited extent. Why, then, are variola and vaccinia not placed in this group? Because, says Mr Wilson, they are torn from their natural affinities, “and, for this reason, I have thought it proper to transfer the genus to the group of eruptive fevers.”—P. 221. Now, we do not object to Mr Wilson’s forming a group of eruptive fevers, but we strongly protest against his placing pustular diseases under such an unmeaning head as Congestive Inflammation.

Is there any method of drawing a pathological distinction between an effusive and a suppurative inflammation? We think not. Examine the contents of a herpetic vesicle, and of an ecthymatous pustule, and both will be found to contain pus. True, the vesiculæ and the pustulæ have been long separated, and we understand by the former a disease in which the vesicles present a stage in which the liquor sanguinis has not yet fully passed into pus. It must be evident, however, that such a distinction can have no real pathological value, for, as regards their inflammatory phenomena, that is, the formation of small collections of pus, they are the same. Why the pus of Herpes should be longer in forming than that of Ecthyma, or why the latter should leave a cicatrix, whilst the former does not, we are ignorant. Again, the suppurative action of Herpes is identical with that of Variola or Vaccinia; but why a pus globule of these last should have the power of regenerating a similar disease, whilst one of the latter has not, we know nothing. But it is exactly on account of our ignorance of such points, which constitute the true nature of these affections, that it is impossible to found a classification on a pathological basis.

The term depositive inflammation, we are told, p. 236, has been selected only in the absence of a more suitable word. Assuredly that chosen is not a good one, inasmuch as every inflammation is depositive. It is employed by Mr Wilson, however, “to express that condition of the inflamed membrane in which plastic lymph is exuded by the capillary rete into the tissue of the derma, so as to give rise to the production of small hard elevations of the skin, or pimples.” We beg leave to deny that, in strophulus, lichen, or

prurigo, a deposit is exuded in any way analogous to plastic lymph, as Mr Wilson may easily satisfy himself by a microscopic examination.

What a squamous inflammation is the author has not thought proper to inform us; for, on turning to p. 261, we find no attempt at definition. The scales are composed of epidermic cells, which, not being vascular, cannot become inflamed. A squamous inflammation, therefore, cannot mean inflammation of the scales. Are we to understand by it an inflammation of the skin, in which the scales peel off in increased quantity? If so, Scarlatina and Erysipelas ought to be classified under this head. The nature and meaning of this newly discovered inflammation is a perfect mystery to us, and we therefore strongly object to it. We are told "that hypertrophy of the derma in the squamous diseases is very evident." Why, then, not place them with callosities and corns, which are also hypertrophies of the derma?

Another subdivision of inflammation is that from parasitic animalcules. But is the inflammation produced in this way different from that originating in any other? Or is it consistent with the principles of classification to divide inflammation in some cases according to its results, as effusive or suppurative, and in others according to its causes? Again, if animal parasites are to constitute a ground of distinction, why may not vegetable parasites claim a similar notice? Do these, in the course of their development, never cause inflammation of the derma? Most assuredly they do, as we have proved innumerable times.

With regard to vegetable parasites, however, we have to charge Mr Wilson with a total unacquaintance with the subject. Whilst he has personally examined into diseases caused by animal parasites, he seems to have entirely neglected those of vegetable origin. It is true he quotes passages from the writings of Gruby and Hughes Bennett, but his own opinion seems to be, that the structures described have no analogy with those of the vegetable world. Speaking of the favus crust, in the preface, p. xx., he says, "Its vegetable nature is hypothetical;" and, when treating of the pathology of favus, he remarks,—

"However closely the fungous growth here described may resemble a plant, its vegetable nature is very far from being established. The simplest forms of animals are composed, like the mycodermis, of cells, variously connected together; and subsequent research may prove the growth under consideration to be of a similar nature. To my mind there is nothing improbable in the supposition of the origin of the growth from morbidly developed epidermal cells of the hair-follicle, or from those of the sebaceous substance. In a preceding section of this work, I have shown that the latter are susceptible of considerable alteration, and that in this state they assume an appearance widely different from that of their normal condition. Mr Busk also entertains doubts with regard to the vegetable nature of the mycodermis, and deduces an opinion favourable to his opinion, from the chemical analysis of the crusts of favus given by Thenard, who found them composed of —

Albumen.....	70
Gelatine	17
Phosphate of Lime.....	5
Water and loss	8

 100

“Dr Carpenter, in his ‘Principles of Physiology’ (p. 453), speaking on the same subject, remarks,—‘It has been assumed that the organization is vegetable, because it (mycodermis) consists of a mass of cells capable of extending themselves by the ordinary process of multiplication. But it must be remembered that the vesicular organization is common to animals as well as to plants, being the only form that manifests itself at an early period of development in either kingdom, and remaining throughout life in those parts which have not undergone a metamorphosis for special purposes. Hence, to speak of *porrigo favosa*, or any similar disease, as produced by the growth of a vegetable within the animal body, appears to the author a very arbitrary assumption; the simple fact being, in regard to this and many other structures of a low type, that they present the simplest or most general kind of organization.’”—Pp. 430, 431.

Mr Wilson has taught anatomy, and is the author of an anatomical manual of no small repute. How any one possessing a knowledge of the elementary structures of the animal tissues could have published such a passage surpasses our comprehension. It immediately follows an accurate description of the vegetations by Gruby, in which we are told that *they consist of roots and branches dividing dichotomously, composed of jointed tubes with transverse septa, containing granules, and giving off at their extremities seeds or sporules.* We have placed this passage in italics purposely. Where, we ask Mr Wilson, is there an animal tissue which presents a similar structure, and where is the vegetable conferva that does not? Knowing, as Mr Wilson seems to do, that such accurate observers and laborious inquirers as Remak, Schönlein, Gruby, Fuchs, Henle, Vogel, and many others, have pronounced in favour of the vegetable nature of these growths, we can only regard his citing as an authority, in favour of his own opinion, a writer like Dr Carpenter, to be either a piece of innocent badinage, or a specimen of fine irony. The fact is, that there is no animal tissue either healthy or diseased, which in any way resembles the structure of the favus crust.

In the present edition, Mr Wilson has separated ichthyosis from warts, corns, and other hypertrophies of the derma. He assigns, as a reason for this, his conviction that the disease is a concretion of altered sebaceous substance—

“In an instance of this affection which fell under my observation about ten years since, I had the opportunity of examining the skin after the death of the patient from visceral disease. In this case, the scales were remarkable for their thickness; after being well washed, they were greyish in colour upon the surface, but white beneath, and evidently consisted of concreted sebaceous substance. On removing a portion of the epiderma by maceration, the ducts of the sebiparous glands and hair-follicles were found distended with inspissated white secretion, and had a very beautiful and brilliant appearance, projecting like cones of pearl from the under surface of the membrane. The derma presented a number of small deep pits, corresponding with these dilated ducts. The mouths of the distended excretory ducts opened upon the surface of the

epiderma, some immediately beneath, and in the middle of the scales, and others by their borders. In the former situation, they could be seen as small white points through the scale, and still more evidently when the epiderma was separated by maceration.

From the careful examination of this case, of which a preparation is now before me, and of others which I have subsequently observed, I have been led to the conclusion, that the scales, in this disorder, increase in thickness, in two ways, firstly, by additions to the free surface, by means of the secretion poured out in the linear furrows of the skin, and, consequently, between the scales; and, secondly, by additions successively made to the attached surface by the effusion of inspissated secretion beneath them. In the preparation before me, the growth of the scales by both of these processes is distinctly evident."

Supposing Mr Wilson's view to be correct, which, as regards all the forms of ichthyosis, we are disposed to doubt, it must be acknowledged that the disorder is in every way allied to the squamæ. Thus, while under the head of congestive inflammation, he mixes up the exanthemata and pustulæ on account of their natural affinities, he dissociates ichthyosis from psoriasis, on account of a theory he has formed with regard to the formation of the scales.

Under the head of disorders of the vascular tissue, Mr Wilson has placed vascular nævi and purpura. Yet what evidence have we that purpura is a disorder of the vascular *tissue*? On turning to page 316, we find the following passage—

"Purpura is a morbid state of the capillary system, characterized by the effusion of blood into the different tissues of the body, this effusion giving rise to the formation of sanguineous patches in considerable numbers, and of various sizes. The capillary vessels of the skin participate in this morbid disposition; hence purpura has obtained a place, by courtesy, among cutaneous disorders."

Surely there is nothing here to prove that the capillary system is affected in purpura. We have been in the habit of considering it as dependent on some lesion of the blood, and the observations of Liston, Lane, and others would seem to countenance this opinion. Of this we are quite satisfied, that the capillary vessels have never been shown to be diseased, and hence another discrepancy in the pathological arrangement of our author.

But it is unnecessary to criticise the classification of Mr Wilson further. We think enough has been said to show that his arrangement is not very happy, or consistent with our present knowledge of pathology. Most assuredly, in departing from the principles of arrangement introduced by Willan, he has not given us one that is more simple or correct; but, on the contrary, by the formation of unpathological terms, has thrown increased mystification and confusion on the whole subject.

The matter of classification is at all times important, and we are well aware of its difficulties. Hence, perhaps, our dislike to the derangement of that which is well established and easily understood. It is curious that writers on dermatology should have acquired their knowledge by following the system of Willan and Bateman, and afterwards endeavoured to supersede it by a natural or pathological

arrangement. We observe this in the writings of Alibert, Cazenave, Hebra, and now of Mr Wilson. No doubt that system has its faults, and as our knowledge becomes perfect we naturally endeavour to arrange it upon a scientific rather than upon an artificial basis. We hope that the efforts which are making in this direction will ultimately be crowned with success. But we must bide our time. Science is not yet sufficiently advanced to solve those difficulties which lie on the threshold of the path, and all the attempts which have been made to form classifications of skin diseases, not by mastering these difficulties, but by putting them aside, have invariably failed, and produced no permanent influence on the minds of the profession.

Turning from the classification and general pathology of Mr Wilson to the special treatises of which his book is composed, we feel much pleasure in stating that many of its individual parts are carefully compiled, and that some give evidence of considerable research and original investigation. Among the latter, we would especially point out the introductory chapter on the Anatomy and Physiology of the Skin, the section on Diseases of the Sebiparous Glands, and the two concluding chapters on the Itch Insect, and the "Steatozoon" Folliculorum.

We cannot discover in the work any comprehensive notions respecting the treatment of skin diseases. One of the evidences of an improved pathology will be the introduction of general principles to guide us in our efforts at cure. As it is, we find only in the publication before us the same empirical formula, and reliance upon contradictory individual experience, as in most books on the same subject.

The following are some of the author's observations on the treatment of chronic eczema:—

"In the chronic form of eczema, when the disease is obstinate, and resists our common methods of treatment, it becomes necessary to modify the state of the constitution by various means; as, for instance, by a course of hydriodate of potash, of mercury, of Donovan's solution, of liquor arsenicalis, or of tincture of cantharides.

"In employing arsenic and cantharides as therapeutic agents, it will be necessary to watch their effects with care, and bear in mind the serious symptoms which may result from their abuse. Should any of these symptoms be apparent, namely, nervous disorder, and disorder of the alimentary canal, in the case of arsenic,—or of the urinary system, in the case of cantharides, the medicines must be immediately laid aside, either permanently, or to be resumed after a few days, according to the judgment of the practitioner. Whenever we put a stop to the exhibition of arsenic, and return to it again, it is necessary to begin with a smaller dose than that at which we left off. Arsenic, when it acts upon the nervous system, performs the part of an alterative, but when its effects are directed upon the digestive system, it appears to me to act, like cantharides, upon the mucous membrane of the kidney, viz. by counter-irritation, by exciting inflammatory action in the interior, and thus determining from the surface.

"The best formula for the exhibition of cantharides is one in which it is

combined with equal parts of compound tincture of camphor, and taken in tincture of cinchona."—Pp. 212, 213.

We have found that arsenic and cantharides act very well together. Equal parts of Fowler's solution, and the tincture of the latter drug, may be mixed together, of which ten drops form a dose to begin with for an adult. The local remedies available in chronic eczema are, according to Mr Wilson, very numerous. We give them exactly as they are set down by him:—

"Sulphuret of potash in lotion or ointment, lime water, bichloride of mercury in weak solution, calamine ointment, zinc ointment, sulphate of copper ointment, tannin ointment, white precipitate ointment, red precipitate ointment, calomel ointment with watery extract of opium, carbonate of lead ointment, tar ointment, sulphur ointment, and mercurial ointment.

"To relieve the pain and pruritus which accompany the eruption, the following remedies as local applications may be tried, viz. acidulated lotions, alkaline lotions, lotion of super-acetate of lead, emulsion of bitter almonds, or of hydrocyanic acid, lotions of opium or hyoscyamus, camphor mixture, infusion of dulcamara, &c."—P. 213.

We do not think that much benefit in practice is likely to be obtained by following directions, if such they can be called, like those just given. Certainly chronic eczema is a most rebellious disorder; but, according to our experience, is in no way benefited by irritating applications like red precipitate ointment. We have found alkaline lotions the best local method of treatment, but then the parts should be kept *continually* moist, by means of saturated cloths, well covered with oil-silk to prevent evaporation.

The following are the author's observations on the treatment of lepra:—

"The internal remedies recommended for lepra are, a course of purgatives; bichloride of mercury in decoction of sarsaparilla, or dulcamara; hydriodate of potash; tincture of cantharides; liquor arsenicalis; liquor potassæ; sulphuric acid; decoctions of guaiacum, mezereum, and elm bark; infusion of nettles; milk of sulphur, &c.

"Of these remedies, that on which I place the greatest reliance is the liquor arsenicalis, or the liquor hydriodatis hydrargyri et arsenici (§ 446). The former of these solutions in doses of five drops, and the latter ten to thirty, three times a day, with meals. The latter is the milder remedy of the two, and rarely produces any disagreeable constitutional effects. Of course it is necessary, in using arsenical preparations of every kind, to counsel the avoidance of acids, fruits, and vegetables, and to explain to the patient the symptoms which call for the suspension or omission of the remedy. The effect of arsenic on the leprous patches is, in the first instance, to increase their redness, activity, and heat, and subsequently to diminish these symptoms, and render them brownish and dull. When the latter change takes place, the eruptions quickly fade and disappear. The medicine requires to be taken regularly, and to be persisted in for several months."—P. 263.

"The local remedies are, lotions of sulphuret of potash, alkaline baths, vapour baths and douches, sea-bathing, spirituous solution of bichloride of mercury, zinc ointment, white precipitate ointment, calomel ointment, nitrate of mercury ointment, ointments of acetate and phosphate of mercury, of sulphate and deutoxide of antimony, ioduret of sulphur ointment, from ten to twenty grains to the ounce, creosote, blisters, nitrate of silver, &c. M. Gibert speaks favourably of an ointment of the ioduret of ammonia, in the proportion

of a drachm to an ounce, and also of the ointments of Anthrakokali and Fuli-gokali. In the employment of these applications, care must be taken, in acute cases, to use them only after the reduction of the local excitement, by means of fomentations, emollient baths, &c., and then only of moderate strength. In chronic cases, however, they may be employed from the commencement, and in a more concentrated form, with the view of modifying the diseased structures.

“‘My own practice,’ says a distinguished author (Rayer) on cutaneous diseases, ‘is to begin with the white precipitate ointment, or with that of the protochloride of mercury, unless in those cases where the disease is of very long standing, when I try the ioduret of sulphur in preference.’

“M. Emery of Saint Louis has lately recalled the attention of practitioners to an old but valuable application in leprous affections, namely, *tar*. Finding, however, that this remedy was objectionable on account of its colour and odour, he had recourse to one of the products of tar, *concrete naphthaline*, which afforded him the most successful results. The preparation which he employs is an ointment composed of

Napthalinetwo to four parts.

Lardthirty parts.

M.

This he applies to the diseased skin, on folds of linen, night and morning. The ointment is highly stimulating, and has a powerful smell, which quickly passes away. By means of the napthaline ointment M. Emery succeeded in curing eight patients out of fourteen, in from five weeks to three months.”—Pp. 270, 271.

Our own experience is decidedly more in favour of the preparations of pitch as local applications than of any other. Napthaline is a cleanly means of employing it, and deserves a trial. We have seen, in the wards of Dr Hebra at Vienna, scaly diseases successfully treated by infusions of tar, made with boiling water in the usual manner, of which a pint was drunk daily. In this manner, the disorders yielded as rapidly as if the remedy had been applied externally, and, of course, without the unpleasantness resulting from the latter mode of treatment.

In the treatment of lupus, Mr Wilson has found the best results from a prolonged course of liquor hydriodatis hydrargyri et arsenici. He seems to be unacquainted with the extensive experiments lately made at the Hôpital St Louis, by M. Emery and others, which have shown the great benefits to be derived from the internal administration of cod-liver oil in these cases.

The following are the author’s observations on the treatment of ring-worm :—

“The treatment of trichosis offers two indications : firstly, to correct the deranged nutrition by constitutional means : secondly, to excite a new action in the skin by means of moderately stimulating local remedies.

“In effecting the first of these objects, diet, exercise, clothing, and ventilation, are important and powerful agents. And their beneficial influence may be assisted by tonic medicinal remedies, such as the mineral acids, quinine, steel, vegetable bitters, &c., given separately or combined. I have found the syrup of quinine and steel a valuable medicine in this complaint, and one which suits the taste of children better than other remedies. The kind of tonic must, however, be left to the judgment of the practitioner, and be determined by its effect on the economy.

“In directing the local treatment, I have found it useful to commence with some moderately powerful stimulant, such as acetum cantharidis, or the stronger acetic acid, which I apply once to the diseased spots ; and, after the

tenderness has abated, anoint the patches daily with some moderately stimulating ointment, such as the unguentum hydrargyri nitratis diluted with ceratum cetacei. Another ointment which I have found of great service, is one composed of a drachm of sulphate of zinc to an ounce of simple cerate. When an objection exists to ointments, a lotion of bichloride of mercury or sulphate of zinc will be found useful, correcting the dryness which follows the employment of lotions by means of pomatum or cold cream. It is beneficial to wash the head with soap once a day, and, when dried, to anoint it with pomatum. I regard the keeping the scalp constantly moistened with some oleaginous matter as an important adjuvant to cure.

“The principle of local treatment being, as I have above stated, moderately stimulant, the remedies applicable to this disease, with advantage, are very numerous, and an extensive choice is left to the practitioner; so that no excuse exists for using such as are disagreeable in their appearance, odour, or effects. The preparations of iodine, for example, are open to objection, on account of the stain which they leave behind, and they are in no wise more useful in their effects than more elegant compounds. A remedy which I frequently use in this disease is liquor ammoniæ and olive oil, accommodating the quantity of the alkali to the amount of stimulation which I desire to effect. This preparation has the advantage of being cleanly and easily removed by washing, while it clears the patches more completely than any other that I am acquainted with. Another elegant, as well as useful application, is a pomatum of cantharidine, prepared at my request by Mr Savory of Bond Street.”—Pp. 419, 420.

It may be worth while knowing the treatment which has proved very successful in Heriot's Hospital School in Edinburgh,—so successful, indeed, that the disease is now very rarely seen there. A piece of very coarse brown paper is rolled into a cone, and the larger end set on fire. The smoke is directed on the diseased scalp. In a little while a drop of empyreumatic oil collects at the extremity of the cone, which should be allowed to fall on the affected part. When it separates, a cure is often produced. Should other means fail, it may be thought worth while to try this.

We could continue making extracts and commentaries, but are now obliged to conclude. This we do, with the remark, that our present mode of treating chronic skin diseases is most unsatisfactory, and often irrational; and that we cannot hope to see greater certainty introduced into our practice, until the pathology of these disorders is further advanced. The microscope has here a fertile field to cultivate. Doubtless, some of the fruits have already been plucked by Remak, Gruby, Hebra, and our author; but there is still a rich harvest to be gathered in by him who will diligently cultivate the soil.

1. *School for Deaconesses for the Sick and Poor, and other Charitable Institutions at Kaiserswerth on the Rhine.* Extract from the Journey of a Tourist. (Rev. C. MAJOR.) Berlin: 1843.

2. *Institution of Protestant Deaconesses or Nursing Sisters at Kaiserswerth, on the Rhine, in Prussia.* London: 1846.

3. *Passing Visits to Distant Charitable Institutions.* Die Barm-

berzigen Schwestern. Extracted by permission from Lowe's Edinburgh Magazine. Edinburgh: 1846.

IN the admirable report given by Dr Balfour, on homœopathic treatment in Dr Fleischmann's Hospital, Vienna, which appeared in the British and Foreign Medical Review, for October last, a passage occurs well worthy the attention of every medical man, and more especially deserving to be seriously pondered by those who have learnt that the giving of drugs is neither the only nor the most important duty which he has to discharge to his patient. The passage is as follows:—

“In taking into consideration the adjuvants to treatment, the religious character of the establishment must not be forgotten. The greater part of the patients are Roman Catholics. These find themselves surrounded by all the consolations of religion—by every thing which, in their opinion, tends to insure in the event of death a speedy passage of the soul to the realms of bliss. Their minds, thus set at ease with respect to futurity, are less gloomy and desponding, and, consequently, react less unfavourably upon the body than in opposite circumstances. Nay, looking upon their nurses as self-devoted in the service of Heaven and suffering humanity, they cannot but believe that the blessing of the Almighty will rest upon their labours; and being the object of those labours they naturally enough appropriate a portion of this blessing to themselves, and imagine that their recovery can hardly fail to be promoted by being the inmates of such an institution. In support of this opinion I may state, that though most of the patients were young, and many dangerously ill, I never heard one expression indicative of a fear of death, nor one murmur, however slight, unless extorted by the extremest pain, and even then, it was more an aspiration after relief than a grieving at suffering. The severer the disease the more closely do they grasp their rosaries and crucifixes. So long as they are able to read, prayer books are constantly in their hands, and even in the intervals of delirium, nay, often, in the cases of women especially, during delirium itself, the exercises of repeating prayers, or snatches of them, is their occupation. The superiority of attendance is also one great advantage in favour of this hospital, independently of the important fact just stated, that the nurses are spiritual as well as temporal comforters.”

This truthful statement of what any one may witness in those hospitals where the patients are nursed by the Sisters of Charity, may well induce us to ask the question, why it is that the professors of a religion which we have been taught to regard as erroneous, should set Protestants such an example in self-denial, and works and labours of love:—

“Observations of this nature made many Protestants of these countries feel the duty of setting before the eyes of their Roman Catholic neighbours, some examples of charitable works carried on by Protestants without the aid of false doctrine, or monastic vows. The Rev. Mr Fliedner embraced the idea with much fervour—and has been liberally supported in his undertaking by many Christians all over Germany.”

This quotation will explain the origin of the interesting institution, the benevolent and successful operations of which it is the intention of the pamphlets at the head of this article to record; our object at present, however, is more immediately to show the

immense advantage in a medical point of view, which would be conferred on our hospitals, and the sick generally, by the introduction of such an institution into this country.

The immediate object of the institution will be best explained by another extract from the same pamphlet:—

“ But long after this office had ceased, the Roman Catholics endeavoured to fill the breach by their ‘Sisters of Charity,’ who have given evidence of their usefulness in our provinces likewise, whilst they are employed in almost every public hospital in France. Owing, however, to their very small number, and particularly to their education in monasteries, the recluse principles, which they often endeavour to spread, these Sisters of Charity of the Romish congregation are insufficient to fill this important office under all circumstances, and according to apostolical principles never can be admitted to serve the Protestant Church nor its members. The object of the school for deaconesses in Kaiserswerth is to correct this deficiency, by educating converted female Christians for deaconesses, to be sent out among the poor and sick of all denominations, for usefulness either in public hospitals or private houses; they may likewise be appointed by Protestant churches, who feel the duty of renewing this apostolical institution in their congregations.

“ It appears that several females, after having been very useful in the hospital of Kaiserswerth, have been sent out to different public hospitals or private families, where they continue to labour with much success in a truly evangelical spirit. Others have been appointed as deaconesses by Presbyterian ministers in their own congregations, and it is to be hoped that these churches will gradually feel the good effect of this very useful institution, which owes its existence to the charity of Mr Fliedner, and the liberal contribution of many Christians all over Germany, among whom I remark the name of the whole Royal family of Prussia, the Duchess of Orleans, and the King of Wirtemberg, whom Mr Fliedner has interested in his benevolent enterprises.”

The rules of the institution we shall extract from the second pamphlet on our list:—

“ The rules of the establishment at Kaiserswerth are the following:—The candidates must not be under eighteen years of age, and serve from six months to two years for probation. After this probationary time, those among them who have been found fit individuals for the work of Christ, receive, during divine service, a solemn christian blessing, and then enter upon their duties as deaconesses at the infirmary, which contains from 100 to 110 beds. They engage themselves to serve at least five years, after which time they are allowed to leave, or may renew their engagement. It is understood, that if nearer, personal, or family duties, should make them wish for a change of situation during that period, every reasonable facility is granted to them for that purpose by the direction, vested in a committee. They receive no salary: a very moderate annual sum is paid by the institution or family they serve to the institution at Kaiserswerth, which defrays their personal wants, enables them to keep themselves decent and respectable, and entirely provides for those whose health has suffered in consequence of their hard service.”

In order that the deaconesses might be properly trained to the duties of their responsible office, Mr Fliedner established near his own house a small infirmary, where the wants of the sick poor could be attended to, while, at the same time, the nurses were acquiring that information, which was to fit them for more extensive spheres of duty. During the nine years which have elapsed

since the hospital was opened, it has received about 1900 patients, of both sexes, and of all religious denominations.

We cannot forbear extracting the following truly eloquent and touching passage from the last work on our list, where the scenes enacted in this hospital are painfully contrasted with those which are too frequently witnessed in similar institutions in this country, which takes so large an amount of credit for christian and enlightened benevolence :—

“ The office of these ‘ sisters of charity ’ (in the best sense of the word they are so), which elevates them above the common sick nurse, and engages them in concerns which touch on eternity, is that of reading the Scriptures to the sick and aged, and dropping a word of consolation into the languid ear, while they minister to the bodily wants. This they are authorised and expected to do, so that, instead of doing it by stealth, as a pious sick nurse may do in our hospitals ; or, instead of railing on the poor sufferer who cries out in concern for his soul’s health, as an impious one has sometimes been known to do, they breathe balm while they turn the pillow, and speak of the way of reconciliation while they endeavour to lull pain. *Barmherzigen Schwestern*, in the true sense of that emphatic title, they soothe the distressed—they speak of sin and the fountain opened, without speaking of penances or confessional, and teach to adore Him who laid down his life for the perishing, without interposing crucifixes, or Mary, or saint, or angel. They are by the bed in the midnight hour, and can seize the moment of coolness and clearness to speak to the afflicted—a moment which neither chaplain, nor medical man, nor friendly visitor, may be so happy as to hit upon ; and, while they are forbidden to be preachers, their living actions, their christian bearing, and their faithful advices, are calculated to drop like balm on the wounded spirit, and have, in many cases, accomplished good which we may justly call incalculable, for its consequences are eternal.”

Hard as the labour is, and irksome as the duty must often be found, we rejoice to be enabled to state that numbers have come forward willing to undertake it, and many of these from a rank of life, which shows that they could not have been actuated by any selfish considerations :—

“ The deaconesses are not only of the lower and middle classes, but several also of the higher and highest ranks of life. One young Baroness of the Grand Duchy of Mecklenberg has just been educated at Kaiserswerth, and is now destined to be the matron of the large new model hospital at Berlin, lately established by the King of Prussia, in which, at least, thirty deaconesses will find work, and which is to become a great nursery for training deaconesses to serve in the different parts of the monarchy. The institution at Kaiserswerth has been called upon to send, at least, twelve trained deaconesses without delay to that model hospital. Two other ladies of high rank are at present at Kaiserswerth, devoting themselves to the same offices. Some nurses have also been educated at Kaiserswerth for Switzerland, for France, and for Holland, and the claims from many parts of the continent for deaconesses from Kaiserswerth are so numerous, that this establishment cannot satisfy them all. It results from the testimonies of the administration and the medical officers of those public institutions, and is a fact of general notoriety, that wherever those deaconesses have been intrusted with the care of an hospital or of a branch of the same, a visible change for the better takes place in all departments, and the satisfaction, the gratitude, and the blessings of the patients, follow those self-devoted nurses everywhere.”

We think the passages we have quoted are amply sufficient to

exhibit the nature and design of the institution, and putting its religious character, for the present, out of consideration, we would ask our professional brethren whether such an institution, properly organized and conducted, would not prove to them an inestimable boon. Could we see the patients in our hospitals treated with kindness and consideration, no longer left to the mercies of hirelings often of the worst characters, and generally selfish to a degree; could we be sure that our orders were strictly attended to, and, if neglected, that such neglect were reported to us; had we the comfortable conviction that cheerfulness and universal kindness reigned in our wards, with how much greater satisfaction could we discharge our duties, and how much more frequently should we expect a beneficial result. Nor are the evils we would remedy, confined to hospitals alone. How often is wealth itself unable to procure the luxury of kind and considerate attention; how almost impossible to obtain conscientious and disinterested service. If Mrs Harris be an imaginary character, Mrs Gamp is by no means so, and were such moral nuisances swept away, and their places supplied by active, intelligent, and well educated nurses, the physician would obtain a coadjutor of inestimable value, and the patient an attendant above all price.

Let medical men proclaim the boon which such an institution would confer, let them press it on the attention of all who have time or talents, means or opportunities to prove it, and we do not despair before long of seeing among us, a school where those who have the necessary gifts may be trained for the best offices of christian charity. Those who are familiar with the working of the Kaiserswerth Hospital, have not been slow to appreciate its advantages, and to endeavour to extend its sphere of usefulness. At the first public meeting in London, in 1845, for the purpose of founding the German Hospital there, a wish expressed by Chevalier Bunsen, Prussian Ambassador,

“ That some of the Protestant deaconesses of Pastor Fliedner’s Institution at Kaiserswerth (near Dusseldorf, for the sick and poor), might come from the Rhine to England for the service of that institution, has been carried into effect in these last days. Four of these deaconesses, educated at the mother institution of Kaiserswerth, arrived last week in London, accompanied by the Rev. Mr Fliedner, the founder of that institution, and have entered upon their duties as nursing sisters, one of them in the capacity of matron of the establishment.

“ This new hospital, which is going on exceedingly well, and has, since its opening on the 13th October last, already benefited some hundreds of poor sick Germans, can now be expected to become a still greater blessing to the inmates. For these christian sisters, in the strength of faith working by love, have undertaken, under the direction of the committee, the management of the hospital, and are ready to show no less humility than self-devotion in its service. Yea, it is to be hoped (to use the expressions of the Rev. Dr McCaul and the Venerable Archdeacon Robinson at the above-mentioned public meeting), that this plan of Protestant nursing sisters will soon be imitated in the English hospitals, where, no less than in other countries, such self-denying

sisters are extremely wanted, according to the general testimony of persons of experience."

We cannot conclude without one other extract from the last of our authorities. No one has had better opportunities of observing the general habits of her sex than the accomplished writer—would that her advice were seriously pondered. How many are the complaints, formidable alike to the sufferer and her friends, and exhausting both to body and mind, which might be altogether prevented, or when they did occur, alleviated, if not removed, by suitable and engrossing occupation. Luxury, refinement, and indolence are slaying their thousands, what but self-denial or Christian principles can preserve them:—

"In this country we lack a little of the German simplicity, and are so nice about distinctions of rank, and what belongs to our supposed station in society, that it may excite strong displeasure if we say that there are many single women in Scotland, of the excellent of the earth, who are not so useful in the Church as they might be; that the reason of this is their want of proper guidance in selecting their work, and of support in its prosecution; and that the deaconess' status in society, and the style of character and bearing expected from her, is exactly what is wanted to confer the necessary energy and steadiness."

We rejoice to see, from the article in Lowe's Magazine, that the subject is attracting attention in Edinburgh, and we earnestly trust that the members of our profession will not be behind-hand in promoting the formation of such an institution, which might surely be engrafted without great expense on some of our existing medical charities.

Ueber die Amputation am Fussgelenke. VON Dr FRANZ CHELIUS.
Mit vier Tafeln. Heidelberg, 1846. 4to.

On Amputation of the Ankle Joint. By Dr FRANCIS CHELIUS;
with Four Plates. Heidelberg, 1846. 4to.

Dr Chelius, during a short visit he made to Edinburgh in the summer of 1846, saw Professor Syme perform amputation at the ankle joint. He had also an opportunity of examining three other cases in various stages, after the operation had been completed. He tells us that the results of this operation excited his astonishment, and convinced him that it was one of the most brilliant and valuable with which modern surgery had been enriched. On his return to Heidelberg he found a case of diseased tarsus, in the Surgical Clinic, in which amputation of the leg had already been determined on. His father, the well known and distinguished professor of surgery, permitted him to perform Mr Syme's operation, which was done without accident, and with the most perfect success.

The present essay constitutes Dr Chelius' inaugural dissertation. It is appropriately dedicated to the surgeon, whom he shows, from a learned critical analysis of all that has been written on the subject, has the merit of originating it, viz. Professor Syme. It gives an excellent description of the mode in which it should be performed, divided into five stages, and concludes with the case which was so successful in his hands. It is illustrated with four very well executed lithographic engravings, exhibiting how the incisions should be made, with a copy of the stump in the instance referred to.

So much has been said in this Journal concerning the operation, that it is unnecessary for us to analyse minutely the excellent essay of Dr Chelius. It is in the highest degree creditable to him, and is exactly that kind of inaugural dissertation we should expect to see in a young surgeon of talent, and one who has been educated under such a distinguished preceptor as its author can boast of. With respect to the operation itself, we sincerely join in his concluding remark; and trust that, owing to his admirable monograph, it will soon be adopted and firmly rooted in the surgical practice of Germany.

Hand Book of Human Anatomy, General, Special, and Typographical. Translated from the original German of Dr ALFRED VON BEHR, and adapted to the use of the English Student, by JOHN BIRKETT, F.R.C.S. of England, &c. London, 1846.

THE plan of this work is admirably conceived, but is rather too vast for the purposes of a manual. On the whole, however, we can confidently recommend it as an excellent guide to the medical student during the first year of his studies.

Elements of Chemistry, including the Actual State and Prevalent Doctrines of the Science. By the late EDWARD TURNER, M.D., F.R.S.L. and E. Eighth Edition. Edited by BARON LIEBIG, and WILLIAM GREGORY, M.D., F.R.S.E., &c. Part I.—*Inorganic Chemistry.* London, 1847.

THIS work is now universally considered as one of the standard books on Chemistry, a reputation which it has maintained through seven editions, and which the eighth, now published, is in every way calculated to confirm.

Part Third.

PERISCOPE.

PHYSIOLOGICAL CHEMISTRY.

ON CREATINE AND ITS OFFICE IN THE ANIMAL ECONOMY—AND ON CREATININE.
By LIEBIG.

It has been long known that the flesh of newly killed animals has a distinct acid reaction. Berzelius has ascribed this property to the presence of lactic acid, a statement never yet confirmed. Several chemists have admitted the existence of lactic acid in the urine, in the gastric juice and in the milk, but the tests relied on in this conclusion, are far from being certain evidence. The researches of Liebig were made with the design of removing all uncertainty as to the organic acid which forms a part of the animal organism.

When the flesh of newly killed animals, finely minced, is washed with cold water, a reddish liquid is obtained, which when subjected to a boiling heat, affords a coagulum of albumen, and becomes almost entirely colourless. The limpid liquor thus obtained, almost imperceptibly yellowish, has a very decided acid character, and a pleasant, very aromatic soup-taste. When it is neutralised by solution of baryta, phosphate of baryta, and phosphates of magnesia are thrown down, it becomes slightly alkaline, though no baryta remain in the fluid. After the separation of the precipitates, and a proper degree of evaporation, crystals of *Creatine*, the substance found by Chevreul in meat soup, are obtained.

The results of this analysis can leave no doubt of the nature of the non-volatile organic acid existing throughout the animal organism. Thus the acid reaction of the muscles is explained; and now that we know that in a great part of the animal frame there exists an acid liquid, which is separated from an alkaline fluid (the blood and the lymph) merely by very fine membranes, it seems easy to explain several electric phenomena observed on the bodies of dead animals, by Matteucci and other physiologists.

By operating on hundred weights of flesh, Liebig has obtained a quantity of Creatine sufficient to ensure an exact examination.

He thinks his experiments warrant him in concluding that Creatine forms part of the flesh of all classes of animals. He has already determined its presence in beef, veal, mutton, pork, horse-flesh, hare, chicken, and pike. The important discovery of Chevreul, who has described the properties of this substance with much precision, becomes the more interesting, because it cannot be doubted that Creatine performs some indispensable office in the actions of life. It is certain at least, that meat-soup can be replaced neither by gelatine nor any liquid besides, drawn from any other part of the animal body except the muscles. Liebig has found Creatine in the heart of the ox, but not in the brain, the liver, the lung, or the kidney.

Creatine belongs to the klinorhomboidal system of crystallization; it is a neutral body which dissolves in alkaline liquids or weak acids, and may be withdrawn from these again without having undergone any change. But when concentrated acids or caustic alkalies are present, its properties become altered. By strong acids Creatine is transformed into an organic base, having very remarkable properties. The substance combined with the acid is no longer Creatine, and cannot again be transformed into that body; it is a new substance which Liebig proposes to term *Creatinine*, and which, by the agency of the

hydrochloric and sulphuric acids, is produced merely by the displacement of four atoms of water.

Creatine contains the elements of glycolle (the anhydrous product of gelatine), together with an atom of ammonia; Creatinine, those of caffeine, together with an atom of amidine.

The extracts of all the kinds of flesh on which Liebig has experimented, evaporated to dryness, and calcined at a red heat, leave a white ash which contains nothing but phosphates. The liquids obtained from the muscular substance of the ox and the horse, leave a mixture of alkaline phosphates (of potassa and soda), precipitating the salts of silver yellow, and of pyrophosphates of potassa and of soda, precipitating these white. The muscle of chicken leaves pure pyrophosphates. The relation of the salts of potassa and of soda in the liquids derived from flesh, and in the blood, is very different. For one equivalent of potassa, the blood of the ox contains from 12 to 13 equivalents of soda. This relation is inverse in the watery extract of the flesh of the same animal. The blood of the horse contains for one equivalent of potassa, 3.62 equivalents of soda. For the same quantity of soda, the flesh of the same horse contains 61.9 equivalents of potassa. These relations will lead to some important conclusion; for it is to be remembered, that in the milk it is the salts of potassa which predominate. If a salt of soda (a phosphate of soda) be really indispensably necessary to the constitution of the blood in many animals, it should follow that the addition of chloride of sodium to the food of these animals, is equally necessary and indispensable in all those places, as in many districts of Germany; where the plants of the pasture do not contain phosphate of soda, or salts of soda. It is easily conceived that the chloride of sodium by reciprocal decomposition with the phosphate of potassa (which is the predominant salt in our nutritive grains), should furnish phosphate of soda, and chloride of potassium; and this last salt is never absent in the liquids derived from flesh.—Account of a letter addressed by Liebig to Gay-Lussac, and read at the French Academy of Sciences, 18 January 1847.—*Gazette Med. de Paris*, 23 January.

MATERIA MEDICA, THERAPEUTICS, &c.

IODINE AND THE IODIDE OF POTASSIUM IN THE TREATMENT OF SYPHILIS. By Dr F. A. ARAN.

After an elaborate historical sketch of the introduction and employment of iodine in syphilis, Dr Aran gives an account of Dr Moij'sisovic's method of treating this disease, by means of iodide of potassium combined with iodine. According to this physician, his plan cures syphilis in three or four weeks. His method is to give the iodide of potassium in doses of from 5 to 20 grains, three times a-day, while, at the same time, a bath of iodine, iodide of potassium, and common salt is employed, the quantities of iodine and iodide of potassium used in each bath, being a drachm of the former, and a drachm and a-half of the latter, and the iodine is not to be added to the water till the patient is in the bath. The patient is to remain an hour in the bath, and gets into a warm bed to promote perspiration. During three days this practice is continued with the least dose of the iodide above mentioned (5 grains three times a-day), when some itching of the skin begins, and then the dose of the iodide is gradually to be increased. About the 10th or 11th day a febrile state arises, accompanied with itchings of the skin, and a scarlet rash or an eruption like zoster. This rash or eruption is followed by a desquamation from the 15th to the 21st day, and these taken together indicate that the iodisation has reached its maximum, and Dr Moij'sisovic affirms, that he has never seen any return of the disease in those cases in which the eruption and desquamation ran this

regular course. He employs a weak solution of iodine and iodide of potassium against exostoses, condylomata, and pustules, and uses local baths still weaker. This kind of treatment Moij'sisovic's uses against every sort of syphilitic affection, whatever be their duration, and even in primary symptoms. Dr Aran complains that there is no account of the cases in which this treatment failed, or in which the disease returned, and calls on the physicians of venereal hospitals to make trial of this practice, with the view of determining its merits with greater certainty.

Dr Aran says, respecting the efficacy of iodide of potassium in tertiary symptoms, that there is an almost universal agreement among those who have published on the subject all over Europe. Hassing says, of 250 cases falling under this head, in the Copenhagen Hospital, treated with the iodide, there were forty-nine deep ulcers of the throat, of which forty-two were cured, three benefited, and four only unsuccessful,—the cure in the latter being effected at last by mercurials; three cases of subcutaneous tubercles, of which two were cured; fifty-one cases of tumour of the bones and periosteum, of which six were cured and thirty-two benefited, the treatment failing in twenty-three,—while the duration of the treatment was on an average nearly thirty-six days; of seventy-three cases of osteocopium, sixty-five were cured, three benefited, and five failed,—the average duration of the treatment being about ten days; of seventeen cases of caries and necrosis, six were cured, four benefited, and seven failed,—the average duration of treatment being forty-four days. Bassereau reports a similar success in tertiary affections, in the practice of Ricord at Paris. Gauthier gives the like account of the effects of this treatment at Lyons; and Payen describes the results as equally satisfactory at Aix, on a most extensive experience of the remedy.

In the symptoms, however, which come under the head of secondary, there is not the same unanimity as to the efficacy of this remedy. Hassing describes its employment in 217 persons affected with the secondary form: Of these, twenty suffered under flat pustules (*pustules plates*), eight at the arms, ten at the genital organs, and two in both places at once; and seven were cured, four benefited, nine derived no advantage: forty-nine suffered from squamous and pustular eruption; and twenty-six were cured in a mean period of forty-eight days, nine were benefited, and fourteen derived no advantage: forty-seven had superficial ulcers of the throat and mouth; and twenty-four were cured in a mean period of about forty days, eight were benefited, fifteen derived no advantage: twenty-seven had pustular eruption; and nine were cured in a mean period of fifty days, four were benefited, four derived no advantage: there were twenty-one cases of tubercular syphilitic eruption, and fifteen were cured,—the mean duration of the treatment being about forty-four days, three benefited, and three derived no advantage: fifty-three cases of syphilitic rupia; and forty-three were cured,—the mean duration of the treatment being about thirty-nine days, seven were benefited, and three derived no advantage. We cannot make room for the analysis of the cases of the secondary form given by our author, as treated by Ricord, Gauthier, and Payen; but, on the whole, it appears that less success attends the treatment of those of that form with the iodide of potassium, than those falling under the head of tertiary symptoms. Gauthier and Payen agree that generally the older the secondary symptoms are, and the more approaching to the character of the tertiary, the more influence has the iodide over them; for example, when syphilitic eruptions become ulcerated. And Payen adds, that the iodide is particularly indicated when the secondary affections are obstinate under the mercurial treatment, and that the iodide should be resorted to at once in cases which, from their long standing, are likely to resist the influence of mercury, and in those cases in which, from the presence of debility, the constitution requires additional tone.

As regards the use of the iodide of potassium in primary symptoms, there is much difference of opinion among the authorities referred to. Haneke, Kluge,

Hocken, Hassing, and Bassereau, give an unfavourable account of its effects, and Hassing doubts its efficacy even in bubo; on the contrary, Bazin, Midtler, and Payen, assert its efficacy in primary sores, without or with bubo. On this discrepancy our author remarks, that the cases referred to by Payen in particular, are cases of indurated chancres; and these, he says, are not regarded by some authorities, as by Ricord, among primary affections. On the whole, then, Dr Aran considers the title of the iodide of potassium to be considered as the basis of treatment in primary affections to be unsubstantiated, though when circumstances prohibit the common treatment, it is sometimes of service.

—Respecting the comparative effects of the treatment by the iodide, when the mercurial treatment has, and when it has not, been previously used, Dr Aran observes,—“Hence it follows that syphilitic spots, pustules, superficial ulcerations of the throat, caries and necrosis of bones, are the more easily cured by the iodide, that a mercurial treatment has been premised; and, on the contrary, that tubercles, rupia, deep ulcerations of the throat, swellings, and deep-seated pains of the bones, yield more readily when no mercury has been previously employed.”

—Should the iodide be used alone or combined with mercurials? Hassing's conclusion is that in the treatment of secondary affections, the combination affords no beneficial results, and this opinion is supported by the evidence of numerous cases treated in the Copenhagen Hospital, in the mixed mode. Gibert and Ricord, however, stand opposed to Hassing's decision on this point.

As to the proportion of relapses, little statistical evidence has been supplied hitherto by authors. Hassing says that relapses are rare in the case of tuberculous eruption, syphilitic rupia and deep ulcerations of the throat, while they are common in the flat pustule, syphilitic eruptions of the papular and squamous character, and superficial ulcerations of the throat—and adds, that these relapses are most common at the end of about eleven months, though he has seen them take place at the end of seven weeks, and of between four and five years.

With regard to the proper dose, Ricord has carried the dose to the greatest extent, for example, as far as 135 grains in a day. Our author considers doses so large as altogether unnecessary, and cites as sufficient, the doses mentioned by Hassing, whose largest dose does not exceed fifteen grains a day, Gauthier, who does not go beyond thirty grains a day, and Payen, whose extreme dose is about sixty grains a day. There is this general agreement on the administration of the remedy, that the dose should be gradually augmented, and that it should be kept up for some time after the symptoms have disappeared.—*Archives Générales de Médecine*, Janvier 1847.

THE ALCOHOL OF SULPHUR AGAINST SCIATICA. BY DR BERG OF VIBORG.

A countryman who, for five years, had suffered at times under a very painful sciatica, with commencing emaciation of the limb, loss of appetite and sleep, and against which a great variety of remedies had been employed, was at last put under the alcohol of sulphur (the bisulphuret of carbon), used both internally and externally, after the method of Wutzer. At the end of five days there was complete removal.—In “*Zeitschrift für die Gesamte Medicin*.”—*Observations of Danish Physicians, communicated by Professor Otto*.

Though the alcohol of sulphur, or bisulphuret of carbon, has been known for about fifty years, yet it has seldom been put to any medical use. From the Memoir of Lampadius, it appears to have been internally employed with advantage in rheumatism, chronic gout, palsy, and cutaneous eruptions, and externally against burns,—the latter use being dependent on its energetic property of producing cold.

BENZOIC ACID AGAINST INCONTINENCE OF URINE. BY DR FRAENE.

The patient was a young girl of 13, who, after two attacks of rheumatism, the latter of which was cured by colchicum, became affected with incontinence of urine. This complaint had already lasted four months, when Dr Fraene was called in. After three weeks of unavailing treatment, he had recourse to benzoic acid. At first six grains, morning and evening, were given; on the fifth day she took twenty-four grains, and the next night the complaint disappeared, and did not return. The remedy was continued for some days after.—*Gazette Med. de Paris*, 6 Feb. 1847.

BELLADONNA BY THE ENDERMIC METHOD. BY LIPPICH.

The preparation used by Lippich consists of one part of extract of belladonna to 35 parts of mucilage of gum arabic. This mixture is spread over a blistered surface; and in one case (one of neuralgia of the coeliac plexus) the application was persevered in for 17 days. The cases besides in which he has been successful by this method are rheumatic lumbago, rheumatic cephalalgia, and thoracic rheumatism.—*Gazette Med. de Paris*, 6 Feb. 1847.

SURGERY.

DIAGNOSIS OF HERNIA OF THE FORAMEN OVALE. BY ROESER of Bartenstein.

CASES of hernia of the foramen ovale are rare, and unless when very large, are seldom discovered till after death. In a case which occurred before to our author, the presence of a hernia escaped detection, till dissection disclosed the disease. In the present case he was more fortunate; the patient was a female peasant, about thirty years of age, who had had one child, two years ago, and another ten years before. For six years she had suffered at long intervals acute pains at the stomach, which arose suddenly without apparent cause, and spread over the whole abdomen, but chiefly around the umbilicus, and these after continuing for some hours, subsided most commonly after several attacks of vomiting. On the 16th of February 1846, she had an attack of the usual pains at the stomach and around the umbilicus, but notwithstanding the occurrence of vomiting at the end of some hours, the pains did not subside. On the 17th, blood was drawn, and two ounces of castor-oil administered without any effect—and morphia was given. On the 18th, she was seen by Dr Roeser. There had been vomiting in the night, without mitigation of the pains over the abdomen, and there was now an acute burning sensation at the stomach; the urine had been hot and scanty, and for the previous twelve hours none had been passed; she could not lie on either side; when placed in the sitting posture, she complained of an acute pain in the bowels, and of the bowels being projected forwards by twitches; belly was somewhat swollen, presenting inequalities, arising from distended portions of the intestines; pulse rather frequent, not hard; resonance everywhere clear, tympanitic even in the hypogastric region, though the urine had not been passed for twelve hours. No marks of hernia were found at the usual apertures. Dr Roeser was led to examine the pectineal region, when he remarked a tenderness over the foramen ovale of the left side, which was not present on the right side. On a more particular examination, he found, at the upper and inner part of the foramen, a tumour the size of a nut, of an elastic feel, and very painful when touched. The patient now remembered that she had felt pain in the same situation in former attacks. The tumour might have been mistaken for a gland, but that it was more tense, smooth, and less pasty, and escaped under the fingers, while pressure caused an inward pain, which ex-

tended towards the epigastrium. Percussion furnished no diagnostic, owing to the thickness of the integuments and the smallness of the tumour. On the evidence just recited, it was obviously a hernia of the foramen ovale. After the taxis had been kept up for half an hour, with great pain to the patient, both in the lower part of the abdomen, and also at the stomach, along with nausea and eructations, the hernia was reduced. There was immediate relief, and in half an hour the bowels were evacuated. On examining the region of the superior and inner angle of the left foramen ovale, there was found a deep depression, admitting the point of the finger, which depression was hardly perceptible on the right side. A truss, with an elongated neck and cushion, was applied, which fitted exactly. In this case the loop of the intestine had escaped between the two obturator muscles and the obturator ligament, and was lodged under the pectineus and short adductor. This hernia is most probably more frequent in females, owing to the greater size of the foramen; and the acute pains attendant on it must arise from the pressure on the obturator nerves. This case is a new instance of the necessity of examining all the apertures by which the viscera can escape when one is called to treat colic pain, and the so-called neuroses of the abdomen.—*Archiv. für Physiologische Heilkunde and Gazette Médicale de Paris*, 6 Février 1847.

PHLEGMASIA DOLENS IN A MALE PATIENT.

M. Blandin, in the *Journal de Médecine et Chirurgie* for November last, relates a case of spontaneous phlebitis occurring in a labourer, exactly resembling the *Phlegmasia alba dolens* of pregnant females. The patient was admitted into the Hotel Dieu, complaining of pain and weakness in the right leg. He stated that, after more than usually severe work, he experienced an extraordinary sensation in the right leg. The veins were swollen, and he had difficulty in moving the limb. The application of cupping-glasses had produced no relief. Before admission he had suffered severe pain throughout the limb, and for some days previously the whole extremity had been much swollen, the swelling having commenced in the calf of the leg, and extended gradually upwards. The lower part of the abdomen as well was now œdematous, and tender on pressure, without any redness of the integuments. Leeches and cataplasms were applied, the horizontal posture was maintained, and mild purgatives administered. Afterwards mercurial frictions were made use of. The patient made a speedy recovery.

M. Blandin remarks, that cases of spontaneous phlebitis never present the severity or acuteness of the same disease proceeding from traumatic lesions, the former generally terminating in adhesion, while in traumatic phlebitis the formation of false membranes does not occur, but suppuration takes place, the purulent matter being absorbed and circulated through the vascular system, and producing purulent infection.

GALVANO-PUNCTURE IN THE TREATMENT OF ANEURISM.

In the *Annales de Thérapeutique* of last month the history of a case of carotid aneurism is given, which terminated fatally under this treatment. Suppuration of the sac, with inflammation of the surrounding parts, followed the application of the galvanism, and the patient died from suffocation while the external coverings of the aneurism were attenuated, and apparently in the act of giving way. On examination after death, coagulation of the blood contained in the sac did not appear to have been promoted by the effect of the galvanism.

It appears that the galvanic current, although it may have the effect of causing coagulation of the blood, is liable to produce inflammation, not only of the integuments, but also of the sac itself. Considerable difficulty is experienced at the same time in withdrawing the needles, owing to their points

becoming oxidated from the effects of the galvanic action ; so that it is probable the adoption of this method of treatment of external aneurism will be found unsuccessful.

TREATMENT OF BURNS WITH AMMONIA. BY GUERARD.

For more than twenty years I have employed against Burns, in the first and second degree, a concentrated solution of caustic ammonia. It has often happened that I have burned myself with red hot charcoal, phosphorus, gunpowder, &c., and the application of the before mentioned agent has always prevented the usual symptoms. When the burn affected the extremities of the fingers, I kept them immersed in the liquid, without any addition of water. If the seat of the burn did not permit such an immersion, I laid on it a compress dipped in the liquid, preventing evaporation by means of a waterproof covering. In such a case, there must be a renewal from time to time of the ammoniacal solution. One is reminded of the necessity of renewing it by the sensation of heat and smarting which arises in the injured part. Immediately after the application of the ammonia the pain is removed, and this state of ease continues so much the longer that the ammoniacal solution is much concentrated. From what I have myself experienced, I should judge that the application of the ammonia must be kept up for an hour at least, to produce a lasting effect ; after which the burn may be left uncovered, without any other dressing. If the burn is extensive, a longer application may be required. In the case of a burn of the face, it must be well understood that the ammonia is not to touch the conjunctiva. I do not think that this application should be used where there is a solution of continuity in the skin ; my experience does not warrant me to recommend it in such a case. I have said that the pain is removed immediately on the use of the ammonia, I should add, that vesications do not arise, but the epidermis dries up, and, at a later period, falls off in parchment-like laminae. It should be remembered, that in the case of an extensive burn, the compresses should be handled with forceps ; for caustic ammonia quickly produces vesications in the sound skin. Care also must be taken to avoid, and to make the patient avoid, breathing the ammoniacal vapour ; and, lastly, the vessels used should be of tinned iron, or of porcelain, copper being attacked strongly by the ammonia.—*Annales de Thérapeutique*, Janvier 1847.

ON THE USE OF STARCH-BANDAGES AT THE HÔPITAL LA CHARITÉ, PARIS.

The starched apparatus in the treatment of fractures has been employed now for a sufficiently long time to permit a mature and final judgment on its merits. We are the more willing to weigh its value, because on this point there is much diversity of opinion among the surgeons of Paris, and because we have before us many facts capable of affording us the grounds of a decisive judgment on this subject. First, it is to be remarked, that in the Parisian Hospitals the starched apparatus has been adopted into general use by no more than two surgeons, namely, Velpeau and Blandin. But yet this apparatus has been everywhere tried. At first it was applied indiscriminately to fractures of the extremities, of all kinds. Velpeau himself, in his first memoir, extolled it, without any exception. In the sequel, nevertheless, unsatisfactory results had been noticed in oblique fractures of the shaft of the femur, and Blandin was the first to give up this method in fractures of that kind ; and Velpeau finally did the same. At the Hotel Dieu we have seen in fact such fractures treated by this apparatus, present, some an enormous riding of the fractured extremities of the bones, others an entire failure of reunion, owing to the starched bandage forming, as it dried, an arch projecting from the limb, while, as soon as the limb itself lost its former swelling, there was no longer a coaptation by the

apparatus, the muscles contracted without impediment, and dragged the dis-united parts so as to ride more and more on each other. Velpeau has doubtless been led, by cases like those described, to abandon his first opinion; and his doing so is creditable to his love of truth. Indeed, the cases which we have seen so treated at La Charité, though cured, were not remarkable for freedom from deformity. Thus such fractures must be left to the old treatment of Scultetus, with the addition of continued extension, for which purpose a starched bandage suffices. Yet we must add that, towards the end of the treatment of oblique fractures of the thigh, when the patient begins to walk about on crutches, the starch apparatus answers admirably. What we have said, then, applies also to fractures of the body of the humerus. But, as regards fractures of the neck, and of the condyles of the humerus, as well as of the condyles of the femur, the starched apparatus, if applied after the swelling has gone down, is of the greatest utility. Velpeau and Blandin apply the starched apparatus to all other fractures, namely, to fractures of the leg, of the fore-arm, and of the clavicle. For the fore-arm this apparatus possesses very great and obvious advantages. But we confess we cannot see its superiority over the common apparatus in fractures of the leg. The state of the limb cannot be ascertained till it is too late to remedy the riding of the bones, if that shall have taken place. Thus the starch bandage, though it may be regarded as an important acquisition to surgery, owing to the many applications of which it is susceptible, in various departments of practice, is far from having displaced the treatment handed down to us by Scultetus. It is proper to add, that Velpeau uses but a weak solution of starch, so that his bandages are not very stiff. The starch is first worked up with spirit, and then water is added, to bring it to the consistence of syrup. The bandages, after being dipped in the solution, are squeezed as much as possible, and the whole dries in a few hours if the limb be placed on a pillow covered with a large sheet of paper.—*Annales de Thérapeutique*, Janvier 1847.

OPERATION OF MYO-TENOTOMY.

According to Neumann, there is but one pathological condition which is indicative of the propriety of the section of tendons; this is *muscular retraction*. When this is not present, whatever may be the state of the parts, the operation will not be followed by its expected results. The muscular retraction referred to, manifests itself, in general, by a tension and hardness of the tendon, or its muscles, which cannot be accounted for by the state of the affected limb. We must be careful not to confound the *retraction* of a muscle, with a *shortening* of its fibres. To show the importance of a due distinction of these conditions, it will suffice to glance at one of the affections for which tenotomy is most frequently employed, *pes equinus*. A man in perfect health is able, at pleasure, to induce such contraction of the gastrocnemii muscles as shall elevate the heel as much as is commonly seen in *pes equinus*. There is no proof, therefore, that the tendon is *shortened* in this affection; it is only *retracted*, and tenotomy destroys the morbid retraction and rigidity of the fibres, without necessarily causing the elongation of the tendon. And even if it did so, the elongation would be inconvenient; for, although the patient would be able to place his heel on the ground, he would walk defectively. Again, it is necessary to separate *morbid retraction* of the muscles and tendons from that which occurs in the aponeuroses and ligaments, forming a real *shortening*.

Among the diseases which require tenotomy, and which depend upon muscular retraction, the author establishes two classes—those which are general, or those which may appear indiscriminately in any part of the body, and those which are confined to particular localities. The first class includes paralysis and ankylosis, when these are accompanied by permanent retraction of the muscles; certain accidents to which the joints are subject, and which are always accompanied by muscular retraction, such as insensibility, sensation of cold,

&c. In the second class he comprises strabismus, ptosis, tortuosities, club-foot, and articular retractions.

Another important question is, whether, when several muscles are simultaneously retracted, they should be operated upon at one or several different times. On this point the author is opposed to M. Guerin, and affirms that it is better to divide several muscles at once if they belong to the same region. If another articulation or limb requires an operation, it should, he observes, be always at an interval of a week at least from the former one.

The author farther states, that tenotomy should never be performed upon infants under a year old. The operation for strabismus ought not to be recommended before the age of eight or ten years, as up to this time the resources of nature may prove sufficient. So also for club-foot, we ought never to operate before the age of twelve years, because previously to this age a cure may be accomplished by mechanical means alone. After the age of sixty the author thinks tenotomy useless. Inflammation of a retracted articulation is a potent contra-indication to an operation in all cases.—*Casper's Wochenschrift. Provin. Journ.*

PATHOLOGY AND PRACTICE OF PHYSIC.

REMARKS ON SOME APPEARANCES IN CASES OF SO CALLED PURULENT POISONING OF THE BLOOD. BY DR HERTZVELD OF ZWOLLE.

Organic chemistry and the microscope are daily working such reformations in the healing art, that attention is again becoming drawn to the long well known influence of the fluids of the body—more especially the blood—upon the organism, and to their influence in the production of disease. In the hey-day of solidism, and especially when the doctrines of Broussais were at their height, every disease was localized; and in order to account for the general symptoms, and the appearance of disease in distant organs, refuge was had to secondary irritation, sympathy by means of the nerves or similarity of tissue, contiguity, vicarious functions, and the like. At present, a more simple, and in many cases a more certain, explanation of the general symptoms of disease, is found in an affection of the blood, and besides this, the many changes, primary or secondary, to which this fluid itself may become subject, and which were unknown to the solidists.

Among those diseased processes which, at present, it is conjectured may owe their origin to a changed state of the blood, belongs the so called purulent poisoning (eitervergiftung), or as it is named by Engel, purulent fermentation (eitergährung), a condition of the blood in which it generally acquires a greater degree of fluidity. This condition is found, indeed, in other diseased processes, but purulent fermentation is specially characterised by the formation of large depots of pus in various parts of the body, it may be in the parenchymatous organs or in the extremities: and this is not unfrequently accompanied with a greater or less effusion of fetid ichor. This diseased process, which may assume various forms, and to which the most opposite names have been given, such as phlebitis, absorption of pus, malignant inflammation, gangrenous erysipelas, diffuse inflammation, abscess by metastasis, &c., is further specially characterised by the circumstance that it always arises under the influence of some infecting matter, be it miasma or contagion, which obtains admission through an open wound or a mucous membrane, and which sometimes appears to be connected with a mucous or pus like secretion. The nature of this infecting matter is still unknown; but it is probable that, like the purulent poisoning itself, it may vary. In the absence of analysis, no very minute distinction can be made of these various conditions. Meantime, however, the varying degree of severity under which the diseased processes connected with these conditions originate, and the diversity of causes which call

them forth, would all seem to indicate some degree of difference in the infecting matter. Thus we see it following wounds in the corrupted air of an hospital, profuse suppurations after amputation, wounds received in dissection, and handling diseased cattle (pus tula maligna, the glanders of horses), and in all these cases it is modified, not only in its course, but in its appearances. Nay, what is more, all acute exanthemata appear to originate in a somewhat analogous process; but their pathological products are developed on the skin or mucous membranes, whilst in the other case they are deposited in the parenchymatous organs, or cellular tissue. In many of these, however,—variola for example,—the contagion is connected with a purulent like secretion, which, by re-absorption, produces the same disease in other organisms. The analogy might be pushed further, and a chronic dyscrasia, as for instance, syphilis, might be placed under the same category, by assuming that in the former an acute, and in the latter a chronic, deposition of the poison from the blood takes place; and thus we obtain a connection between diseased processes, which, in their form, course, and consequences, are very different, as between erysipelas and typhus, metritis septica, and *ulcus phagedanicum*; a connection which only shows the more strongly how manifold are the diseased changes to which the blood is subject. These diseased processes may all be reduced to two principal heads; 1st, a diseased state of the blending of the elements of the blood, which originates from the peculiar constitution of the body, and only under the direct influence of external forces, as in the scorbutic, chlorotic, carcinomatous, tuberculous, and scrofulous diatheses, &c. (dyscrasia); 2d, such as are called forth under the influence of contagion, to which the above named processes of purulent poisoning belong (poisoning of the blood).

It is well known that it has long been a subject of dispute, as to how, in cases of purulent poisoning, the poison is taken up into the blood. The doctrine of phlebitis, as set forth by Dance and Cruveilhier, is a step in the direction of the new hæmato-pathology, from the old theories of inflammation. Experience has abundantly proved that this doctrine is quite untenable, and that true cases of purulent poisoning may occur without a trace of inflammation in the veins. This has been proved beyond doubt, by Kennedy, who, among others, gives two cases by Duncan, in which diffuse inflammation followed bleeding at the arm, and in which, on dissection, the veins were found perfectly healthy. The author himself met with a case in 1840, under the care of Professor Tilanus, in which, in like manner, no trace of inflammation was found in the veins after death.

The case was the following,—“A man aged forty, received a small wound on the left elbow joint. On his admission into hospital, the left arm was found greatly swollen, hot, with diffused redness, and the epidermis raised into a blister; there was also headache, foul tongue, small pulse, low state of temperature of the skin, disturbed vision, subsultus tendinum, evident disturbance of the cerebral functions, delirium and coma, alternating with consciousness. Next day gangrenous vesicles, yielding a fetid odour, were found on the arm. The gangrene soon spread, and adynamic symptoms set in, such as sunk visage, cold skin, dry tongue and lips, diarrhœa, muttering delirium, &c. The spreading of the gangrene appeared, at one time, as if about to stop, but this hope soon vanished, and the patient sank on the fourteenth day.

“On dissection, the arachnoid was found covered with fibrinous exudation; the brain, lungs, and intestines were healthy. The cellular tissue under the dead skin was found in a state of suppuration, with necrosis of the aponeuroses; the deeper cellular tissue, with the vessels and nerves, were matted together into a firm mass. The brachial artery and vein were dissected out of it, and on being laid open, their internal coats were found perfectly healthy.”

But it may be affirmed that there is positive proof, by experiments on animals, to show that purulent poisoning of the blood may originate from suppurating phlebitis. This the author does not deny, but he believes that in such cases, a destructive or putrefractive process (the name is of no conse-

quence, seeing we are ignorant of its essential nature), arises from the mixture of the pus and blood, by which a deleterious matter is formed, that exercises a poisonous influence over the whole mass of the blood. The author then comes to the views entertained by others regarding purulent poisoning. The destructive action does not arise from the mechanical admixture of the pus or its elements with the blood, but in the development of a substance hitherto unknown, and which has its origin in the degeneration of the pus itself. The strongest objections against purulent poisoning are ; 1st. The pus cells are too large to pass through the pores of the vessels ; 2d. The disappearance of large abscesses without any prejudicial effect on the organism.

It is, indeed, almost incredible that acute physiologists should ever have entertained in sober seriousness the crude views stated in the first objection. Must not every solid substance, ere it is fitted for absorption, be reduced to the fluid state ? And do we not see the same appearances under other pathological circumstances ? When new articular surfaces are formed in old luxations, are the bony cells, as such, taken up into the vascular system ? or, when a necrosed portion of bone is separated from the sound one ? The other view, as stated in the second objection, is a confirmation of our author's views in regard to purulent poisoning ; for what occurs in the disappearance of such an abscess ? As Vogel has justly stated in his pathological anatomy, it is the serum of the pus which suddenly disappears ; the pus corpuscles, on the other hand, may be found in an unchanged state for a long period. It is only after a considerable time that they disappear by absorption, *and only after they have been reduced to the fluid state.*

The same thing takes place in purulent poisoning, but with this difference, that in the first case, the serum abstracted from the influence of the air, retains its natural properties ; whereas, in the other, in consequence of the effect of the air, or some other miasma, a substance is generated, by some species of chemical process, which acts prejudicially on the whole mass of the blood. Far from ascribing this to the solid parts of the pus, he believes it to originate from the ichor, the remarkable fluidity of which sufficiently distinguishes it from laudable pus ; just as in the same way the poisonous properties of small-pox matter reside, more evidently in the lymph than in the pus of the pustule.

When a mixture of pus and blood takes place in the vessels, either in consequence of a wound, or phlebitis suppuratoria, the pus cells act merely as a mechanical hindrance, and produce stagnation in the circulation of the blood ; a stagnation, certainly, which, were it carried to any great extent, would produce death as suddenly as the entrance of air into the veins, or the injection of oil, as in the well known experiments of Magendie ; but those appearances, to which the name of purulent poisoning has been given, can only take place after the pus has previously undergone some change in its properties by means of a chemical process.

According to our author, therefore, Engel is entirely wrong in assuming that in order to produce purulent poisoning, contact of the pus with the blood is a necessary condition ; and he is also wrong in ascribing to the pus cells a solvent power on the blood. Indeed, the very proofs which he brings forward in favour of those diseased processes, ranged by him in the category of purulent fermentation, testify against him ; and the objections stated by him to the opposite views are easily overcome. 1st. "*All croupy exudations (the name given by Rokitansky to membranous exudation, the result of inflammation), says Engel, undergo the process of cure by the pus-like solution of the coagulable lymph, and its effect on the blood is prevented in consequence of its being separated from it by the medium of an uninjured skin.*" To this our author replies, the effect on the blood is prevented merely because the exudation being abstracted from the influence of the air, is not subject to any disturbing chemical processes. And the proof of this, he states, is to be found in the operation of empyema, the unsuccessful result of which arises from the admission of air, and its action on the exudation, which cannot be prevented. 2d. "*Inflammation*

of the lymphatic vessels, accompanied with purulent exudation, seldom exercises any prejudicial effect upon the blood, and for the reason, that the pus being isolated in the lymphatic system, no actual contact can take place." As already stated, our author conceives there are several varieties of blood poisoning, and that these differ materially in their appearances, course, and results. Syphilis may be placed in this category; for here a dyscrasia of the blood is produced by the inoculation of a contagion grafted on the pus. Is there any isolation of the pus in the lymphatic system in this case? Is it not the case, on the contrary, that a syphilitic bubo always precedes the constitutional affection? 3d. "*Chronic abscesses, which from impenetrability of the skin, or other causes, are shut up as in a sac, exercise no prejudicial influence on the blood.*" Of course, because the air has no means of penetrating to the pus, so long as they remain unopened; and hence the great caution exercised in opening chronic abscesses. 4th. "*Phlebitis, or umbilical arteritis, in new born children, produces no change in the blood, and yet pus is formed both in the arteries and veins; there is nothing, moreover, in the locality to prevent its being taken into the mass of the blood.*" The fact is correct; but why is the pus not taken up? Because coagulation of the blood is produced by the solid parts of the pus, and hence a complete separation from the rest of the vascular system.

The same thing occurs in true phlebitis. But all this, according to our author, is just a proof that the effect of the blood corpuscles is to cause stagnation. Were the pus cells themselves the cause of purulent poisoning, a diseased process allowed by Engel himself, to produce great fluidity of the blood, how could any line of demarcation take place, or how can we explain the origin of the stagnation?

Besides all this, there are many diseased processes, justly placed by Engel under the category of purulent putrefaction, in which there is no proof that an actual contact between the pus and blood actually takes place, but, on the contrary, there are many probabilities against it. Among other examples, the author adduces that of glands in the human subject, in all the cases of which hitherto detailed, the symptoms of purulent putrefaction were present, on which account, Engel, true to his system, holds the communication of it from animals to men as exceedingly doubtful. But this has been completely proved by the most careful observation, and as no direct mixture of the pus and blood can in this case be admitted, it hence follows that the infecting principle in purulent poisoning does certainly not reside in the pus cells. The same thing holds good in the puerperal processes, diffuse inflammation of the cellular tissue, &c., in all of which cases not only is there no direct proof of the admixture of the pus and blood, but, on the contrary, it is in most cases highly improbable. From all that precedes, the author conceives himself entitled to draw the following conclusions:—

I. Every case of purulent poisoning is not produced by phlebitis.

II. Purulent poisoning arises from a product acting prejudicially on the blood, and which product is the result of a chemical process in the pus.

III. This deleterious product is grafted not on the pus cells, but in the pus serum.

IV. In order to produce purulent poisoning direct admixture of the pus and blood is not essential.

V. When, in consequence of phlebitis, a mixture of the blood and pus occurs, there ensues, as a result of the mechanical properties of the pus corpuscles, stagnation of the circulation, and coagulation of the blood; the true purulent poisoning only arises when the pus has undergone the chemical changes above alluded to.—*Van Deens Archiv. I. 5, as quoted in Schmidt's Jahrbücher, Jan. 1847.*

We have no doubt that the conclusions of our author are, to a great extent, correct. That pus may be absorbed into the blood with impunity, is proved every day by the disappearance of large abscesses, and the passage of the absorbed

matters from the system in the urine. The cases recorded by Drs Craigie and Hughes Bennett, also prove that individuals may die without any of those symptoms which we are in the habit of ascribing to purulent poisoning of the blood, and yet every vessel of the body may be filled with pus corpuscles. It is not pus itself, then, which produces these symptoms, but something else. That change, whether it be denominated fermentation, putrefaction, contagion, or otherwise, is the real cause—a change probably chemical, which, by inducing an acid state of the purulent matter, dissolves the corpuscles, and renders it preternaturally fluid. The experiments of Magendie have shown that injection of stagnant water into the veins produces the same symptoms as putrid pus, and those of Lebert prove that when the serum of pus is injected alone, independent of the corpuscles, it is sufficient to produce the effect. The theories, then, which attribute the so-called secondary absorptions to phlebitis, or mechanical obstruction by the pus corpuscles, are alike erroneous.

TREATMENT OF ACUTE PNEUMONIA WITH LARGE DOSES OF TARTAR-EMETIC. By
M. GUERARD.

Two very severe cases of pleuro-pneumonia have just been treated with the sole aid of tartar-emetic, by M. Guerard, with the best results. Neither case was bled, and both took eighteen grains of the drug daily. The first case was that of a woman, aged fifty-four years, thin and feeble, with an intense pneumonia of the whole superior lobe on the right side, which had existed several days, and was advancing towards the second stage. The sputa were sanguinolent and viscous: there were dulness and crepitating rale; very frequent pulse, not to be counted, small and reduplicated, and general prostration. Such were the unfavourable symptoms on admission. In such a case, bleeding was out of the question, and eighteen grains of tartar-emetic, dissolved in ptisan, was ordered to be taken in the twenty-four hours. This treatment was continued for ten days. On the eleventh day, the patient was without fever; the pulse was sixty; auscultation only indicated; a little *râle de retour*; and the respiration was easy. The remedy was then ordered to be continued at the dose of six grains daily. The patient only experienced, at the first doses, some vomiting and diarrhoea. Afterwards tolerance of the remedy was perfectly established, and now her cure is certain.

The second case was an old woman, aged sixty-eight years, who was brought to the hospital in a most alarming state, having had for several days a pneumonia of the superior lobe of the right side, entering upon the second stage. The symptoms were the same as in the preceding case, only much more severe. It was impossible to employ blood-letting, on account of the feeble state of the pulse, and general weakness. M. Guerard prescribed eighteen grains of tartar emetic daily, as in the former case, and in a week the disease had sensibly diminished. Now, the eighth or ninth day of the treatment, the patient is advancing towards convalescence. At present the medicine is continued at the dose of six grains daily, and she is already taking beef-tea.—*Annales de Thérapeutique*, Janvier 1847.

The *Annales de Thérapeutique*, to which we are so frequently indebted for an account of what is doing in the Parisian hospitals, is edited by Dr Rognetta, a gentleman who seems to be a great upholder of Italian pathology and Italian practice. Of Italian pathology we shall at present say nothing, although, on some future occasion, we may allude to some of the very curious doctrines which our contemporary is endeavouring, with great ability, to establish in France. Certainly nothing can be more opposed to our present notions of diseased processes than some of these views. Chlorosis, for instance, is not a disease of the blood, but a chronic inflammation of the arteries! Of this, however, more on a future occasion. With regard to Italian practice, it must be tested, like all practical matters, by experience. We are informed that M. Guerard

was induced to give the large dose of tartar-emetic in the two cases just related, by reading an article in the *Annales* on the doctrine of Rasori; and it is added that they would probably have died had not the tartar-emetic been pushed to the extent it was. Facts are proverbially stubborn things, and we would call the attention of our readers to those above related. Pneumonia has been for some time unusually prevalent among us, principally affecting the upper lobe, and proving rapidly fatal. In cases, then, which do not admit of bleeding, and these are many, it should be known that tartar-emetic has proved beneficial, not in doses of two, but in doses of from ten to twenty grains daily. "If Rasori," says our contemporary, "had made no other discovery than this, it would have sufficed to have immortalized him. It can only be compared to that of John Hunter for the treatment of aneurisms."

TREATMENT OF SIMPLE ASCITES BY FLYING BLISTERS.

A man, aged 28 years, of a good constitution and general health, had been for ten weeks the subject of abdominal pains and nausea, without fever. These symptoms had only continued a few days when the abdomen commenced to enlarge. The patient experienced general lassitude, want of appetite, and progressive emaciation. He ceased to work, and entered the Hôpital de la Charité, under M. Rayer. On examination, the abdomen was found as large as that of a woman at the eighth month of pregnancy, doughy to the feel, but with evident fluctuation. The skin was everywhere dry, but there was no unusual heat or pain on pressure. The pulse was neither full nor frequent, and the rest of the organism presented nothing remarkable. The patient only complained of the size of his abdomen, and of general weakness. M. Rayer diagnosed a simple ascites, dependent on a super-secretion from the vessels of the peritoneum, or rather on a sub-phlogistic irritation of that membrane. This variety of ascites he believed to be very rare; he scarcely meets with one or two cases a year, and it is constantly cured by flying blisters to the abdomen. A fly blister the size of two hands, therefore, was ordered to the left side of the abdomen, near the umbilicus; then, some days after, another to the opposite side. In a few days the abdomen diminished in volume, and it is probable that the cure will be effected by the help of blisters alone, as in the other cases which M. Rayer has treated. This practitioner considers simple ascites as analogous to a chronic rheumatic hydrarthrosis, to such a degree as is just sufficient to produce an abundant secretion of fluid in the serous cavities.—*Annales de Thérapeutique*, Janvier 1847.

Considerable confusion exists as to what is meant by active and passive dropsies. By the former, in our opinion, should be understood only lesions of the peritoneum itself, of an inflammatory nature. Other dropsies may be active, as far as disease in any other organ is concerned, but passive, as relates to the peritoneum. Thus lesions of the liver, kidneys, ovaries, &c., may proceed rapidly, obstruct a greater or less number of veins, and thereby induce effusion. Mechanical pressure from an enlarged uterus, or a tumour, may produce similar results. On the other hand, there are, doubtless, many primary lesions of the peritoneum not yet understood, and which require an antiphlogistic and counter-irritant treatment. The late Professor Graham, of the Edinburgh University, was well aware of this fact, and practised the antiphlogistic treatment successfully in some remarkable cases of primary ascites. The only difficulty is one of diagnosis, and this we think not insuperable by way of exclusion. We have several times seen, in the cavity of the peritoneum, and of the pericardium, a dirty-coloured, turbid fluid, containing, when examined microscopically, numerous pus corpuscles, and yet no redness of the serous membrane, no thickening, no lymph, and, in short, no other lesion that could be discovered. In all such cases the treatment of M. Rayer by means of blisters should not be lost sight of.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXVI.

THIRD MEETING—*Wednesday, January 6th, 1847.*—DR R. HAMILTON, P., in the Chair.

The *President*, on taking the Chair, read an address to the Society, in which he returned thanks for the honour conferred upon him. He was not ignorant of the ground on which the Society had acted, and that he was in no small degree indebted for the flattering position he now held, to the circumstance that he was an humble instrument in its formation. In founding the Society, he had applied to about fifty gentlemen, not one of whom declined. One object was uppermost in his mind—that the proposal should be free from every thing like clique or party. The only other point he kept in view, was to apply first to the junior rather than the senior members of the profession. He acted thus, because in that quarter it was to be presumed there would be more elasticity and energy, and less fear, perhaps, of jarring and discrepancy. Of this, however, there was none. The fifty names were speedily obtained, including most, if not all, the leading men in Edinburgh. He held in his hand the original requisition paper, which he requested the Society to preserve among its archives. There would be found in it the signatures of Thomas Charles Hope, James Russel, James Bryce, George Wood, James Buchan, George Kelly, John Barclay, Thomas Spens, James Home, George Bell, T. H. Wishart, Henry Johnston, Andrew Duncan, senior and junior, and many more, whose autographs will, with time, become more and more interesting. Of the fifty-three requisitionists, thirty were now dead, and twenty-three survive.

The President went on to observe—"A meeting for incorporating the Society was called for the 21st day of August 1821. The constitution originally drawn up and revised—the same precisely as at present—was unanimously approved, and the first set of office-bearers appointed. These, as appears from the first billet, were as follows:—Dr Duncan, senior, President; Dr Home, James Russel, Esq., and Dr Thomson, Vice-Presidents; Dr Duncan, junior, Dr Abercrombie, Dr Spens, George Bell, Esq., James Law, Esq., J. H. Wishart, Esq., W. Wood, Esq., Councillors; James Bryce, Esq., Treasurer; Drs W. P. Alison and R. Hamilton, Secretaries. Of these fifteen gentlemen, you will perceive that only four remain.

"Dr Duncan, senior, was our first President; and, as was to have been expected, that well known individual, whose name is so closely associated with the periodical literature of his time, and with societies which still exist, whose object it is to promote good-will and fellowship round the social board, was not backward in encouraging another, whose aim was to advance the intellectual improvement of that profession, to which he was so much attached. He was an assiduous President, and among the first who tendered communications to the Society.

"Through Dr Duncan's instrumentality, and that of the many other FELLOWS who were members, the Society was from the first most kindly accommodated in the Hall of the Royal College of Physicians, an accommodation which continued uninterruptedly for nearly twenty years, when there was a temporary suspension. Of the cause of this I am not particularly informed; but in the absence of precise intelligence, we may assume it had some reference to arrangements which led the Royal College to dispose of its old Hall that it might obtain a more convenient one;—an hypothesis which might be sup-

ported by the fact, that no sooner had the College moved to its temporary premises in George street, than it again accommodated our Society in apartments, where not a few of us have spent many happy and agreeable hours.

"The first meeting of the Society for public business, was held on the evening of the 5th December, 1821, exactly twenty-five years ago, where, after an address from the Chair, by Dr Duncan, Dr Abercrombie read the first paper, the subject being the Pathology of the Heart.

"Communications flowed in apace; and, as is well known, three volumes of Transactions were speedily published, under the auspices of a small committee. These volumes are now out of print; they are often quoted in the current literature of the day, and are the depositories of many valuable papers.

"Such, then, gentlemen, is a passing glance at the formation of our Society; and now would I venture a word or two upon *its present condition*.

"We have seen that about fifty individuals concurred in promoting the establishment of the Society; and it now appears from our last published list of members, that—corresponding ones included—our present numbers reach to more than three times that.

"To many of the distinguished founders of the Society, it were easy as well as agreeable, were it at all necessary, to pay a deserved tribute of respect. But in this place our Duncans and Thomsons, our Russels and Barclays, our Bryces, Abercrombies, Kellys and Turners, require no eulogium. These are names not unknown to fame, as men who laboured much and long in the prosecution of science, and exhibited not a few of those excellencies and graces which adorn our common nature.

"But they are gone; and their places are now occupied by those I have the honour of addressing. Gentlemen, I repeat, that at the formation of the Society we had amongst us distinguished names. But I hesitate not to add, that after the lapse of a quarter of a century, there are still left amongst us, as there have been added to our numbers, many who are closely following the footsteps of their illustrious predecessors; and some—nay, many of whom, I trust, will far outstrip them in the career of honour and renown. Most cordially, as sincerely, do I congratulate you, that you have amongst you, and, as it regards the wide range of medical pursuit, whether it respect anatomy, healthy or morbid, or the fascinating study of physiology, or chemistry and materia medica, or therapeutics, or physic, or surgery, or obstetrics, names which are not only an honour to you, but to your science. Many of these men, I rejoice to say, are young; and others are not old, but in their prime; and, surely, we may safely predicate, that if these individuals will continue as they have begun, and steadily persevere in their bright career, they will shed a lustre upon our city as upon our Society, and extend their fame not only throughout their native land, but to the remotest parts of the habitable globe.

"Such, then, being the case as it regards the number and the character of those forming our Association, are we anticipating too much, when we cherish the hope that the Society will proceed in its onward course of usefulness with an accelerated and a firmer step? The *objects* of the Society are the same now as they were at the commencement, and the *means of promoting these objects* are, as ever, alike simple and efficient."

The President then entered into a very comprehensive sketch of the present state of medicine—he discussed at some length the claims of homœopathy, and pointed out its fallacies and absurdities. He alluded to hydropathy and mesmerism—commented severely on several passages extracted from the British and Foreign Review, and touched upon many points which ought seriously to engage the attention of the profession, such as the sanatory condition of our large towns, statistics of health and disease, the new poor-law bill, the quarantine laws, &c. &c.¹

¹ It is with extreme regret that we have found ourselves unable to print the whole of this excellent address. Its length forbade, for it would have occupied one-fourth of a number, even though printed in our small type.

PROFESSOR SYME ON THE QUESTION OF LIGATURE OR COMPRESSION IN POPLITEAL ANEURISM. This communication appeared entire in our last number.

Dr GEORGE PATERSON and Dr BURT were elected ordinary members.

FOURTH MEETING—*February 3d, 1847.*—Dr R. HAMILTON, P., in the Chair.

CASE OF POPLITEAL ANEURISM, IN WHICH COMPRESSION WAS UNSUCCESSFUL, BY MR TURNER OF MANCHESTER, COMMUNICATED BY PROFESSOR SYME. Jane Smith, æt. 28 years, a spinner, married, has four children, resides in John Street, Ancoats. She was admitted an out-patient under the care of Mr Turner, for a tumour in the popliteal space of the left leg. She is a pale looking woman, of low stature, and of a lymphatic temperament. Had no illness particularly, since a period of ten years ago, when she had a severe attack of fever. She gives the following statement as to its origin. On the 30th of May 1846, she was employed in drawing a wheelbarrow up one side of a mound of earth, and during the exertion she was obliged to use in doing this, she suddenly felt something give way with a sort of snap in the left popliteal space; she suffered severe pain immediately, which did not abate until she managed to reach home, and applied some liniment. It was not until two or three days afterward she felt any tumour. When first noticed, it was about the size of a nut in diameter, not much elevated above the surrounding tissues, and rather soft upon pressure, was very painful now and then, especially when she walked much. It gradually increased in size from this time up to the present.

The tumour was examined in the out-patients' room—it was rather larger than a common sized egg—very firm—pulsating strongly, with a loud bruit heard with the stethoscope. She was taken into the Infirmary, and in a few days, was brought before a consultation of the surgeons, when it was thought best to try the effect of pressure upon the artery supplying the tumour. A fortnight having transpired, and the tumour rapidly growing larger, extending laterally forwards from behind, filling up the whole of the popliteal space, and making the knee look almost double its width,—an instrument with screw, &c., was adapted to the thigh, and pressure applied to the femoral artery at the junction of the upper and middle course, and this continued for the length of an hour; at the end of this period it was removed to the artery, just as it issues from beneath Poupart's ligament, and continued here for the same space of time, after which it was removed to its original situation, thus alternating the seat of pressure.

This was continued for a fortnight with scarcely any interruption, and without any difference with regard to the tumour. She complained of excessive pain from the pressure, and now and then she lessened the amount of it unknown to her surgeon. At the end of the fortnight, she refused to have the pressure continued any longer, consequently the instruments were removed.

From this time the tumour was left alone without anything being applied for the space of a fortnight. On the 25th Sept. Mr Turner proceeded to the operation of tying the femoral artery. He made the usual incision over the artery, at about the junction of the upper and middle third, at the point where pressure had been applied. The superficial and deep fasciæ and cellular tissue, were condensed into a strong membrane; the inner border of the sartorius muscle was atrophied or partially wasted by the continued pressure. The sheath of the vessel was condensed, and so mixed up with contiguous parts as to be scarcely distinguishable—which state of textures caused no little difficulty in getting at the artery. The coats of the artery and vein were much condensed, and the artery smaller than usual. A ligature was now applied to the artery, and the external wound closed up with a few strips of adhesive plaster—and a pad or piece of lint (wet), and a flannel bandage applied from the foot upwards, after which she was removed to bed, and was ordered an anodyne draught.

26th Sept.—She has passed a very good night ; has a slight flush on the cheeks ; tongue clean ; no thirst ; pulse calm ; no pain in the wound or leg ; there is no perceptible pulsation in the tumour through the bandage ; and the limb, she says, feels comfortable and warm. In the evening there was a little febrile disturbance, and an effervescing mixture was ordered.

27th, Has not slept very well ; says she does not feel so well this morning ; tongue furred ; little or no thirst ; takes a little gruel or tea, &c. ; pulse a little quickened ; bowels not moved since the 24th Sept. ; complains of pain at the back of the head, and across the loins ; but the leg feels comfortable.

28th, Has not slept much ; countenance slightly anxious ; tongue white and furred ; a little thirst ; pulse 80, softer ; bowels moved last evening ; pain in the head continues, but now no pain in the loins ; leg feels comfortable and warm ; she says the wound irritates her a little, though not painful.

Oct. 1st, Looks much better this morning, and is more cheerful ; tongue much cleaner ; pulse calm and regular ; bowels costive ; no pain in the head ; leg feels very warm and comfortable ; the tumour is firmer, and also much less in size. Laxative enema.

3d, Is improving now very fast, and does not complain of any thing but being compelled to stay in bed. The wound was dressed to-day for the first time since the operation, and is healing up very fast—the ligature is still very firm. The tumour is less and feels considerably firmer, no bruit can be heard through the stethoscope, and the leg feels warm.

The ligature came away on the 15th Oct. ; wound almost healed ; she feels quite well ; tumour much reduced.

Nov. 9, She was made an out-patient ; tumour nearly the size of a walnut ; can walk very well, and without any uneasiness ; is now cured.

Professor Syme observed that this case, which had been kindly transmitted to him by Mr Turner, tended to verify the anticipation he had expressed, as to the risk of pressure increasing the difficulty of an operation, in the event of its subsequently proving necessary. Mr Turner's patient happily recovered, but in the hands of a less skilful surgeon, would probably have suffered serious if not fatal consequences, from the condensed state of textures surrounding the artery at the part where it was tied.

CASE OF COLLOID CANCER OF THE PERITONEUM, BY DR GEORGE PATERSON.—Marion Greenhill, æt. 31, was admitted into the Infirmary, Oct. 17, 1846. She dated the decline of her health from a laborious labour she had about three or four months previously. About a month subsequently she began to lose flesh, and became languid and jaundiced. At this time also, a small round swelling appeared in the left iliac region. She soon after felt a swelling at the epigastric region, accompanied by a burning heat shooting through the back. The abdomen also commenced to swell. For the last six weeks the urine has been scanty, with frequent desire to micturate, and for the last two weeks she has experienced excessive vomiting. On admission, no tumours could be felt, but there was considerable distension, with some tenderness of the abdomen. There was thirst, white tongue, weak pulse, scanty urine, and constipation. The treatment was palliative only. She died at the end of November, the emaciation and debility increasing, occasional vomiting, and latterly symptoms of pleurisy and pneumonia.

Sectio Cadaveris, Dec. 2.—Skin of yellow cachectic hue—extreme emaciation—abdomen distended by fluid.

Thorax. Heart small—felt very dense—coronary veins very turgid. About 4 oz. of dark brown turbid serum, containing flocculi of lymph, were effused into the right pleura. The pleura, over the lower lobe of the same lung, was coated with patches of recent lymph. The inferior portion of this lobe was partly grey, partly red on section, from hepatisation, and presented two indurated portions the size of a walnut, and of a plum colour, as if from recent ex-

travasation of blood. There were about 6 oz. of serum in the left pleura; the inferior margin of the lower lobe of left lung also hepatised, but to a less extent than the right. A few patches of recent lymph also covered its pleural surface.

Abdomen.—Peritoneal cavity contained about a gallon and a half of dark yellowish brown clear fluid. Under right lobe of liver a pouch was formed by a band of membranous lymph, stretching from its fissure to the anterior abdominal wall, which contained about a pint of fluid similar in its character.

The whole of the peritoneal surface was of a dark red or purple colour, mottled with round and square patches of a white deposit, varying in size from a small pea and under, to $\frac{3}{4}$ of an inch square. The dark colour of the peritoneum appeared to be owing to a covering of chronic lymph, deeply tinged with blood, and which could be removed in layers from the surface of the intestines. The white patches consisted chiefly of rounded semi-transparent masses of colloid cancer, resembling in appearance gum-arabic, and deposited on the peritoneal surface. Over the transverse or descending colon, those masses were very common, and closely aggregated together. The peritoneal surface of the diaphragm was covered with similar masses, some of them as large as an almond, and its posterior portion in the liver adhered strongly, through the medium of the same deposit, a continuation of which accompanied the vena cava in its passage through the liver, surrounding it to the thickness of a quarter of an inch. The spleen was united to the diaphragm and descending colon by firm bands of chronic lymph, and its surface studded over with rounded semi-transparent gelatinous masses, the size of a pea. Internally the above organs were all healthy, the disease being confined to their peritoneal coverings. The pancreas and kidneys were also healthy.

The pyloric end of the stomach was felt to be hard and greatly enlarged, constituting a dense tumour, and the transverse arch of the colon was closely united to it by a mass of morbid deposit. Professor Goodsir, to whom these parts were sent as taken out of the body, and who has since had a preparation of them made for the University museum, informs me that "the coats of the stomach, along the lesser curvature, and at the pyloric extremity, were found to be thickened and contracted by deposition of cancerous matter. The transverse colon was drawn up towards the greater curvature by a mass of cancer, extending between the parts; and the matter, in its appearance and mode of deposition, resembles the carcinoma alveolare."

Both ovaries were converted into solid tumours, about the size of a small orange, but deeply nodulated and irregular on their surfaces. On section, they seemed composed of a sarcomatous mass. In the left, this enclosed three cavities, about the size of a bean, filled with a gelatinous matter, resembling in colour and consistence, trembling calves'-feet jelly.

PATHOLOGICAL AND CLINICAL OBSERVATIONS ON CANCER, by Dr J. HUGHES BENNETT.—The author confined his observations to the four questions connected with cancer, which more particularly interest the medical practitioner, namely, 1st, Is there any anatomical character which will enable us positively to distinguish a cancerous from any other kind of growth? 2dly, Is there any evidence that cancer is ever spontaneously curable? 3dly, What means do we possess of diagnosing cancerous from other tumours or growths in the living subject? and, 4thly, What influence should our present knowledge of diagnosis have upon the treatment?

1. *Is there any anatomical character which will enable us positively to distinguish a cancerous from any other kind of growth?* A cancerous growth may contain the following elementary structures:—1. Molecules and granules; 2. Nucleated cells of various shapes; 3. A filamentous or fibrous tissue; 4. A viscous fluid; 5. Blood-vessels; 6. Fatty matter; 7. Pus, and compound granular cells; 8. Black pigmentary matter; 9. Earthy matter. Of these, some are accidental or only occasional, and others essential or invariably

present. The essential elements of cancer are, 1st, A fibrous mesh-work or stroma; 2dly, Nucleated cells; 3dly, A viscous fluid in which these float.

The fibrous tissue of cancerous growths exactly resembles that found in lymph, or in the healthy tissues of the economy. It may be formed either by deposition or by means of cell growth. In the former case, filaments more or less delicate, and closely aggregated, may be seen crossing each other or running in bundles, forming various kinds of mesh-works in which the cells of cancer are deposited. In the latter case, we can observe fusiform cells splitting up into fibres, and are able to trace their formation from round, oval, or caudate cells, until perfect fibres are formed. These cells (called by Lebert *fibro-plastic*) are of a round or oval form, varying in size from the $\frac{1}{100}$ th to $\frac{1}{50}$ th of a millimetre in diameter. Sometimes they possess a distinct nucleus, about the $\frac{1}{150}$ th of a millimetre in diameter; at others, contain only several molecules and granules. Acetic acid causes these bodies to undergo very little change. They become somewhat paler, but there is no marked difference in this respect between the nucleus and cell wall. These cells, in their different stages of development into fibres, have been frequently mistaken for those of cancer;—Müller placed them among cancerous growths; and hence the erroneous opinion, that the caudate or spindle-shaped cell is characteristic of cancer. Fibrous tissue may be arranged so as to form loculi, containing a viscous fluid with or without cancer cells, constituting the colloid tissue of Authors.

The nucleated cells peculiar to cancer vary greatly in shape and size. Sometimes we see nothing but oval bodies about twice the size of a human blood globule, or closely resembling, except in colour, the oval blood corpuscles of the llama or camel. They measure about the $\frac{1}{75}$ th of a millimetre in length, and $\frac{1}{100}$ th or $\frac{1}{120}$ th of a millimetre in breadth. These oval bodies are the nuclei of cancer cells. Sometimes they exist alone; at others, we may observe, by careful management of the light, a round or oval delicate cell wall, frequently resembling a mere shadowed halo, in the fluid in which it floats. On adding acetic acid to them, we find the cell wall disappear, whilst the nucleus becomes more distinct than formerly. Such is the character of a cancer cell in its young state. At a more advanced period of development, the cell wall is more distinct. The nucleated structure is now round or oval, its medium diameter being about the $\frac{1}{50}$ th of a millimetre, with a round or oval nucleus about the $\frac{1}{100}$ th of a millimetre in diameter. The addition of acetic acid always produces a remarkable change in these bodies, causing the cell wall to become very transparent and faint, and the nucleus to assume an unusual degree of distinctness. Hence the author considers that Dr Walshe has committed a fundamental error in the histology of cancer, when he says, p. 33 of his treatise, that "the ultimate microscopical cells of cancer are insoluble in cold and boiling water, and are not seriously affected by acetic acid."

Dr Bennett minutely described the further growth of these cells, which he illustrated by diagrams, showing how they multiplied from cell rising within cell. It is owing to this cellular structure that cancer owes the reproductive power which constitutes its malignancy. The cells occur isolated or in groups, surrounded by the other elements of the growth, but more especially by the fibrous tissue.

The third essential element in cancer is a gelatinous fluid. On cutting through a scirrhus tumour, however hard it may be, we may generally succeed in scraping from its surface a fluid more or less transparent. In soft cancer it is more abundant, and contains the granules and cells previously described. In some forms of cancer, however, it constitutes a very large proportion of the mass, presenting a gelatiniform or mucilaginous appearance, varying in colour from a pearly white to a deep amber, and in consistence from a slightly viscous fluid to a firm semi-solid mass. Collections of this kind may occur in loculi formed by fibrous tissue, or in cystic tumours perfectly structureless, or containing only numerous molecules and granules, constituting the simple colloid tissue of Gluge and Lebert. When associated with cancer,

however, it contains a greater or less number of the cells previously described, in various stages of their development. In the case just narrated by Dr Paterson, the gelatinous matter within the loculi of fibrous tissue contained numerous cancer cells in an advanced stage of development, enclosing secondary and tertiary corpuscles, all of which presented the characteristic reaction on the addition of acetic acid.

It is the relative amount of the three essential elements of cancer now described, which constitutes its peculiar form. If the fibrous element be in excess, it constitutes scirrhus. If the corpuscles be numerous, encephaloma is produced—and if the fluid abound, and is collected into loculi, we call it colloid cancer. There is no other difference between these three forms than this, and Dr Bennett expressed his conviction that there was no essential distinction between them. He pointed out that we frequently find all these forms of cancer in the same tumour, in one place scirrhus or hard cancer, in another encephaloma or soft cancer, and in a third gelatiniform, alveolar or colloid cancer.

The non-essential elements of cancer, such as blood-vessels, pus, fatty, pigment and earthy matters, &c., modify the external appearance of the growth in particular cases, but are not constant. Want of time prevented the author from entering into a consideration of these anatomical complications.

At an early period in the study of histology, it was natural to conceive that a certain *form* of the cell should be thought characteristic of cancerous growths. The observations of Müller led to the belief that the caudate and spindle-shape of this minute structure was peculiar to them. Hence, we find him confounding certain tumours long denominated sarcomatous, and which wholly consist of fusiform cells, with cancerous or malignant growths. These, however, have no power of reproduction, and although often associated with cancerous cells, should not be confounded with them. From the results of many examinations, Dr Bennett was satisfied that there is no one form of cell which can be considered as at all times characteristic of cancer. The caudate and spindle-shape of these bodies are common to fibrous structures in general, frequently seen in lymph, and especially in the exudation forming the granulations on ulcers, recent wounds, vegetations on the endocardium, &c. &c.

The *structure* of the cell and the action of acetic acid upon it is much more distinctive. If the corpuscles are in that stage of growth in which they present a distinct nucleus with contained nucleoli, and if on the addition of acetic acid their external wall be rendered more transparent, whilst the border of the nucleus is apparently thickened, they are highly characteristic of a malignant structure. But even this is not an absolute and invariable mode of distinction; besides, it is only applicable when the cells have arrived at a certain stage of development. Dr Bennett had frequently seen young epithelial cells under certain circumstances present all the characters just mentioned, with the exception of enclosed nucleoli, and undergo the same reaction with acetic acid. This is very apparent in some cases, where effusion has taken place into the lateral ventricles of the brain, when the epithelial cells of the choroid plexus become separated, swell out from endosmosis, assume a globular form, and if young the cell-wall is partially dissolved in acetic acid, whilst the nucleus is unaffected. The same occurs with the epithelium of the bladder. He has found in the bladder a fluid having all the external appearance of pus, and on examination shown them to consist of round, oval, and caudate nucleated cells, exactly resembling those found in cancer, and acting with acetic acid in the same manner. Yet the lining membrane of the bladder, the ureters and kidneys were perfectly healthy. We need not wonder, then, that epithelial cells have frequently been mistaken for those of cancer even by histologists, and that many growths, consisting of hypertrophy of the epidermis, or epithelium, as in several so-called cases of cancer of the lip, ulcerated warts, excrescences, &c., should have been mistaken for malignant growths.

Dr Bennett stated that he was not aware of any tissue in which a fibrous

and a cell structure, such as had been described, were combined, and he was, therefore, inclined to think, that whenever we find cells of this kind deposited between the meshes of a filamentous structure, we may be satisfied that cancer is present. If we trust to the form of the cell alone, we may confound epithelial growths with cancer—if we trust to the fibrous elements alone, we may mistake sarcomatous growths for it. But in no case, so far as his experience has yet gone, can the two be associated without the existence of malignant growth. This character, then, he thinks one which will apply to all forms of cancer. In many cases, the form and appearance of the cells to an experienced eye, will be sufficient, this more especially when they are fully developed, and the influence of acetic acid upon them observed. In difficult cases the conjoined character of the cells and fibres, and their relative position with respect to each other, will enable us to determine the point with more exactitude. To arrive at a knowledge of these facts, however, considerable skill in the manipulation of the microscope is necessary, and a very intimate acquaintance with the healthy and morbid tissues of the body. To distinguish the relative situation of the cells and fibres, especially when mucous membranes are the object of investigation, a section, by means of Valentin's double-bladed knife, is also in most cases essential.

2. *Is there any evidence that cancer is spontaneously curable?* Of the ultimate causes of cancer, or why an exudation thrown out from the vessels should ever undergo the peculiar transformations described, we know nothing. Observation and experience, however, coincide with the modern theory of cell growth, in attributing to it a reproductive power, on which its malignancy and power of spreading from tissue to tissue depends. Is this process ever checked? A general opinion prevails that cancer is necessarily fatal. Dr Bennett did not coincide in this opinion, because it was not easy to understand why nature should never cause the degeneration and disappearance of this one particular growth alone, whilst every other tissue and form of cell-life was occasionally abortive.

Trousseau, Hodgkin, Cruvelhier and others, have frequently traced the conversion of scirrhus into ossiform matter, in the lower animals and in man. Dr Walshe on this subject, observes, "I feel myself justified in affirming, that after careful investigation of the point, that if the bony lamellæ actually continuous with some part of the skeleton, and which formed a marked characteristic of certain cancers connected with osseous structure be excluded from consideration, the phenomenon in question will be found to be much more written of than observed. (Treatise, p. 81.) Dr Bennett stated that he had seen this transformation into calcareous matter in five cases, and presented four preparations to the Society taken from three of these. The first preparation, was a portion of a large soft cancer, lobulated externally, taken from a case of Dr Paterson's preserved in spirit. A microscopic examination showed it to contain numerous cancer cells, deposited in areolar tissue, combined with an immense number of crystalline masses of phosphate of lime. The second preparation, was a dried section of this tumour, the volume of which was only slightly diminished, and seemed to be wholly formed of calcareous matter. The third preparation was a dried portion of intestine, with a mesenteric gland attached, the external portion of which was converted into calcareous matter; where fresh cancerous matter could still be squeezed from its centre, exhibiting the characteristic cell structure, mixed with a quantity of earthy matter. The fourth preparation was a dried portion of mesentery, studded over with enlarged mesenteric glands, completely calcareous, removed from the body of a female who had died from scirrhus and chronic stricture of the pylorus. This series of preparations, Dr Bennett considered, offered conclusive evidence that cancer is capable of undergoing the calcareous transformation.

It has been stated, that cancer sometimes becomes transformed into fibrous or fatty tissue, and thus produces cicatrices in organs. It is very difficult to prove such a statement, because if there be no cancerous cells in a fibrous tissue, it is

contended that it is not malignant and never has been. On the other hand, if cancer cells be present, it is clear that we have no evidence of degeneration. There can be no doubt that many organs and tumours are considered cancerous, which are only fibrous. Dr Bennett had examined many so called cases of scirrhus of the pylorus, which were only hypertrophy of the muscular and fibrous tissue of the part. He alluded to a case of Dr Alison's he had examined, in which the coats of the stomach throughout varied in thickness from an inch to an inch and a-half. The viscus was thought by all who saw it to be cancerous, and yet he showed it to consist of nothing but fibrous tissue and fusiform cells. He had also proved many tumours supposed to be cancerous, to be only fibrous.

Professor Bochdalek of Prague, formerly pathologist to the hospital there, and now Professor of Anatomy in the University, published a memoir in 1845, "On the Healing Process of Cancer in the Liver." He describes the cancer in this organ, as breaking down into a cream like matter, the fluid parts being absorbed, and the whole shrinking together, forming a puckering on the surface often corresponding to a fibrous mass or a fatty material, in which collapsed cancer cells may yet be detected. In some livers, he has seen these cicatrices in all stages of formation, cancer in some places, and perfect cicatrices in others. In Prague, he tells us, there are between 400 and 500 bodies examined annually. Among these cancer of the liver occurs about 16 or 17 times, and among these proofs of healing may be observed between 6 and 7. (*Oesterreichische Wochenschrift*, 26th April 1845.)

Dr Bennett had frequently seen these appearances in the liver, but he had never been able to satisfy himself that they were proofs of cured cancer. There are strong probabilities in its favour however. Tubercular masses are rare in the liver of adults, and such lesions must depend either upon cancer or upon chronic abscesses. He exhibited to the Society two wet preparations of livers, with puckerings on their surfaces, some corresponding to white fibrous cicatrices, and others to rounded yellow masses, varying in size from a pea to that of a walnut. When recent, these latter were thought to be cancerous by all who saw them, yet a minute examination showed them to be formed principally of fibrous tissue, mixed with irregular fatty particles, and debris of cells, so indeterminate in their character, that their nature could not be ascertained. In some of the cases of Prof. Bochdalek, cancer was associated with these cicatrices, and that cancerous ulcers occasionally cicatrize, is well known to surgeons.

When in Prague last autumn, Dr Bennett having been previously acquainted with Professor Bochdalek's memoir, carefully examined the preparations of the lesion described, in the pathological museum of that city. He recognised them to be the same in appearance as those he now presented to the Society. Professor Dlauy, the present pathologist, was so polite as to take the preparations out of their bottles, make fresh incisions into them, and permit Dr Bennett to examine them microscopically. He found that the cicatrices, though altered by spirit, were principally composed of fibrous tissue, the nature of the softer matters could not be ascertained. This was no proof of cancer. He was then shown a similar preparation of a liver, together with a stomach taken from the same case, the former having similar puckerings, and the latter a cancerous ulcer of which the individual died. Whether this was a mere coincidence it would be difficult to say. M. Sedillot has lately asserted that cancer cells are occasionally elongated, so as ultimately to form fibres, but it is not certain whether he has clearly distinguished the fibro-plastic elements so often present in cancerous tumours from those of cancer. Dr Bennett considered, that taking every statement into consideration, it was by no means improbable, that cancer might occasionally degenerate into a fibrous mass, although we still require positive proof of it. At all events, they have convinced him of the necessity of making further researches on this subject.

The same difficulties exist with respect to the supposed degeneration of cancer into fat. Nothing is more common than to find associated with cancer, a yellowish friable matter, more or less abundant, resembling cream in colour or consistence, or presenting a bright gamboge yellow tint. This, on examination, is found to consist of numerous granules, which disappear on the addition of ether, and refract light, like globules of oil. Whether these granules are elementary nuclei and cells, or whether they are the result of the disintegration of cells previously formed, is unknown.

What means do we possess of diagnosing cancerous from other growths in the living subject? The local symptoms and general signs of cancer have frequently been found to be insufficient for the purposes of diagnosis, such as the lancinating pains, unequal surface, hardness, elastic feel, softening, ulceration, the surrounding tissue being affected, a general alteration of the constitution, and a tendency to return after excision. All these symptoms have, at various times, been proved to be connected with epidermic, fibrous, fatty, or cystic growths.

In the living subject it is clear that the anatomical arrangement of the fibrous and cellular elements, observed in morbid specimens, can seldom be seen. We have no opportunity of obtaining a section. Still there are certain places where the detection of such cells as have been described, exhibiting their peculiar change under the action of acetic acid, will enable us to diagnose a malignant growth with certainty. Over most of the surface generally, for instance, where the diagnosis most concerns the surgeon, a group of such cells cannot leave us in doubt, because the epidermic scales in such cases never resemble them, as they do in internal organs, as the bladder, stomach, or brain. Thus, although anatomically, and in all cases, we cannot depend upon the form or even structure of the cell, as connected with the epidermis alone, we can. Hence, to the surgeon, a minute examination is a more precious means of diagnosis, than to the physician. Various ulcerated and fungoid tumours of the surface may be diagnosed with certainty, from an examination of the cells alone, whilst in fluids discharged from the stomach, bowels, or bladder, this means of diagnosis is not so certain.

Many instances are now on record, where in doubtful cases, such an examination has determined the nature of the growth. Several have been lately published by M. Sedillot of Strasburgh, and others may be found in the works of Lebert and Vogel. There can be no doubt that many tumours and ulcerations exist which, to the naked eye, and according to the ordinary symptoms, resemble cancer, although they are perfectly innocent. To all such growths Lebert has given the name of *cancroid*. Among them may be placed many so called cancers of the lip, which, on examination, are often found to be fibro-epidermic; many tumours of the breast, which are either fibrous, fibro-epidermic, or cysto-sarcomatous; fungoid swellings of the dura mater: the ordinary fungus of the testicle, which Messrs Goodsir and Syme have shown to consist of healthy granulations; and probably the so-called chimney-sweep's cancer of the scrotum. Several instances were referred to, published in the writings of Lebert, Vogel, Syme, and Sedillot.

There were some cases, no doubt, where, after every means of research had been employed, doubt as to the nature of the growth would still exist. All those who contend for the exclusive advantage of any one sign or symptom, must have very limited notions of disease or diagnosis. No one could repudiate the use of the microscope more than the author was disposed to do, as a sole means of diagnosis in any case. But he contended that this instrument judiciously employed, is likely to be as useful in the hands of the surgeon, for the diagnosis of cancerous and *cancroid* growths, as the stethoscope is in the hands of the physician for the diagnosis of diseases of the chest. Neither instrument should be alone depended on, but conjoined with the history and other symptoms, will lead in many cases to more correct conclusions than it is possible to arrive at by means of the unaided senses. Dr Bennett cited a few instances which

had come under his own observation, confirmatory of this statement, and alluded to others brought forward by the writers formerly mentioned. A few dozen cases, however, could not be considered a sufficient basis for this important inquiry. He believed that the whole subject was yet to be worked out, and considered it above all things desirable, that some young surgeon would dedicate his time and energies to the task. No doubt it was troublesome to be under the necessity of entering into new researches on points which many consider already determined, and where such decided opinions respecting them had been so long held by practitioners. Such, however, were the sacrifices which the progress of medical science required. In the meanwhile Dr Bennett invited surgeons to forward him specimens of morbid growths in a fresh state, or to enable him to examine the ulcers or discharges from malignant and doubtful growths or ulcers. He would make notes of the result, and these with a short history of the case, might form the ground-work of a more extended series of researches, which would no doubt, before long, lead to some positive result.

4. *What influence should an improved knowledge of the pathology and diagnosis of cancer have upon the treatment?* Most of the practical points connected with the surgical treatment of cancer, were fully discussed in the French Academie de Médecine, in 1844, on the occasion of a paper read by M. Cruveilhier. That eminent pathologist maintained that surgeons are continually cutting out fibrous tumours from the female breast which never undergo cancerous transformation, and which therefore might be allowed to remain with perfect safety. So far from fibrous growths ever degenerating into cancer, he considers that they indicate a state of constitution altogether incompatible with malignant action, so that in being able to detect them in the breast or uterus, he has confidently assured the patients that they would never be subject to cancer. In support of these statements he brought forward cases of tumours in these situations, which had existed from ten to thirty years, and cited one exceptional instance, where cancer having attacked a breast already the seat of fibrous tumours, these remained unaffected, while all the rest of the organ was cancerous. He pointed out that cancer always depended upon a constitutional disorder, that local disease was the effect and not the cause, and to remove the first, while the latter was allowed to remain, was an irrational practice.

In these opinions M. Cruveilhier was supported by M. M. Velpeau and Jolly. The first maintained that he could diagnose fibrous, or what he called fibrinous tumours of the mamma, which never degenerated into cancer, although he frequently removed them, to tranquillize the patient, or to get rid of a deformity.

On the other hand it was contended by most of the practical surgeons of Paris, including the names of Blandin, Gerdy, Roux, Amussat, Berard, and Lisfranc, that it was impossible to diagnose fibrous from cancerous tumours of the breast at an early period; that the former were only an incipient stage of the latter, and consequently frequently degenerated; and that the best practical rule to be followed was always to excise them as early as possible. They maintained that the disease was first local, and that the cachexa was induced by absorption from the morbid growth—was the cause and not the result. They denied the law of incompatibility, sought to be established by M. Cruveilhier, and denounced his paper as one likely to be followed by the most injurious consequences in practice.

In support of these opinions, numerous cases were cited, having all the symptoms and characters belonging to what M. Cruveilhier called fibrous tumours, which afterwards became cancerous, and destroyed the patient. Some specimens also were brought forward, where tumours, originally fibrous, had apparently undergone the cancerous transformation, even in the uterus. Many surgeons brought forward instances of tumours, to all appearance truly cancerous, which were excised, and where there had been no return for a long series of years.

This celebrated discussion left the practical question in the same state as before, namely, that as a matter of prudence, all tumours should be removed from the female breast as early as possible, whatever be their nature. No one practitioner who took a part in it, appeared to be aware of the real structure of cancerous tumours, or knew that a fibrous as well as a foreign growth was invariably present in them. Indeed, many cited, as the best proof of cancer, the presence of the dense fibrous structure, often grating under the knife, which is exactly that part of the tumour which is least malignant.

A more perfect diagnosis, however, has already led to some useful modifications in surgical practice. Among these, Dr Bennett alluded to the altered operation of fungus of the testicle, so successfully executed by Mr Syme, as communicated to the Society. Another valuable modification has been introduced by M. Sedillot of Strasburgh. It is well known that in many cases of incipient cancer, it has been advised to make the incision embrace a considerable portion of the sound textures, in order to insure eradication of the malignant growth. Thus the whole female breast has often been removed, although the extent of the tumour has been inconsiderable. In cases, however, where a restoration of parts is necessary, as in the lip, the rule is very inconvenient. M. Sedillot, therefore, in several cases, having satisfied himself, in the manner pointed out, that the ulcer or growth is not cancerous, has barely removed the indurated structure, and thus been enabled to preserve a larger amount of soft parts than he otherwise would have done. These operations have been perfectly successful.

In some cases, an exact diagnosis formed by a microscopic examination, has prevented an operation which would otherwise have been determined on. Vogel gives a case of ulcerated breast of this kind. (*Icones Histologiæ Pathologicæ*, p. 127.) Dr Bennett has seen two others, where, in a canceroid growth in the breast, he diagnosed non-malignant disease. All these cases ultimately recovered.

If when this means of examination has been so little employed, such good results have already resulted, what may we expect when surgeons are more extensively aware of the benefits which may be derived from an exact diagnosis? Dr Bennett believed that we were only on the threshold of the inquiry, and that the most important discoveries would yet be made in the pathology and diagnosis of cancerous growths, the influence of which upon surgical practice could not be calculated on.

In conclusion, Dr Bennett observed, that he had carefully avoided theory. He had said nothing of the supposed mode of growth of the cancer cells, whether the disease be dependent on a peculiar condition of the blood, induced by any particular regimen, climate, constitution, or other causes. He had confined himself entirely to facts, and endeavoured to show that cancer possesses a distinctive structure; that it may occasionally undergo a calcareous, and probably a fibrous transformation; that a knowledge of its structure is of diagnostic value; and that this has already been serviceable to the healing art, and bids fair to be still more so in the treatment of this class of fatal diseases.

Professor Syme observed, that it was Mr Lawrence who first pointed out that fungus of the testicle was not a malignant disease. That surgeon, however, extirpated the organ, whereas, the operation he had introduced enabled him to preserve it. With respect to the tumour lately removed from the neck, he had at first considered it purely fibrous, but as the operation proceeded, he was induced from its connections and general appearance to believe it malignant. He should feel much surprise if it did not return. As regards the question concerning the cure of cancer, he had always thought that its chief characteristic was incurability. He should like to know Dr Bennett's views as to the possible degeneration of fibrous or fatty tumours into cancer.

Dr Taylor inquired how it was possible to examine microscopically a tumour in the living subject, when no section could be procured.

Dr George Paterson observed, that he could not consider the puckerings and yellow deposit in the liver, as shown in the preparations on the table, to be proofs of cured cancer. This disease had a tendency to spread, and destroy neighbouring tissues, an evidence of this was exhibited in the specimens before the Society. On this point, however, he had noticed that *Dr Bennett* had expressed a very cautious opinion.

Dr Martin Barry observed, that he believed the description given by *Dr Bennett*, of the cell-formation of cancer to be correct, and that from what he knew of such structures, there could be little doubt that they possessed the power of reproduction.

Dr Alexander Wood considered the observations made respecting the possible cure of cancer likely to be injurious in practice. He was not satisfied that the calcareous masses presented to the Society were proofs of cured cancer, and was disposed to believe that this never occurred in the human subject. Even did this kind of cure take place, he thought that patients would be in no better circumstances, than if they had submitted to an operation.

Dr Bennett in reply, said he had little doubt that fibrous and some fatty tumours might become the seat of cancerous growth. Wherever blood-vessels existed, there it was possible for an exudation to be thrown out, in which cancer cells might be formed. It was only by supposing a superadded growth that those cases could be explained, where tumours remained indolent for years, and then suddenly increased with rapidity, presenting all the appearances of malignity. That fibrinous tumours occasionally become cancerous, was proved by a case of Professor Sedillot. A young soldier, previously in good health, fell from his horse upon one shoulder. A considerable extravasation of blood took place into the axilla, which was partially absorbed, and subsequently formed a firm circumscribed tumour. At length all the symptoms of malignant disease were manifested, the tumour was extirpated, and proved by a microscopic examination, to contain cancer cells. With regard to diagnosis in the living subject, a microscopic examination could, of course, only be directly beneficial when there was an external sore, or some discharge came from the part. The benefit likely to result indirectly from obtaining a clear notion of the nature of cancerous tumours, and separating them from canceroid growths, could not be calculated. The inquiry was yet in its infancy, and our present notions with respect to the curability or incurability of the disease, would require to undergo a complete revolution. We were assuming as proved, and making that enter into our definition of the disease, which was the first point to be candidly and impartially investigated. With regard to the evidence of cured cancer in the liver, it rested principally on the observations of Professor Bochdalek of Prague, to which he had alluded. As to the possibility of cancer being capable of undergoing the calcareous transformation, he contended that the series of preparations on the table, afforded proof in the affirmative, as positive as it was in the power of morbid anatomy to furnish.

Drs Balfour, Anderson, Menzies, Brown, Roberts, and R. Young, were admitted ordinary members of the Society.

SIXTH SESSION OF THE OBSTETRIC SOCIETY OF EDINBURGH.

Wednesday, January 20, 1847.—*Dr SIMPSON*, President, in the Chair.

The following gentlemen were elected office-bearers for this session :—*Dr Simpson*, *President* ; *Dr Beilby* and *Dr Graham Weir*, *Vice-Presidents* ; *Dr Cumming* and *Dr Keith*, *Secretaries* ; *Dr Cumming*, *Treasurer*.

It was unanimously agreed, that, in future, regular abstracts of the proceedings of the society should be published in the *Monthly Journal of Medical Science*.

bc CASE OF TURNING UNDER THE INFLUENCE OF SULPHURIC ETHER; AND PROPOSED SUBSTITUTION OF TURNING FOR CRANIOTOMY IN CASES OF DETENTION OF THE CHILD'S HEAD AT THE BRIM OF THE PELVIS.—*Dr Simpson* showed a child which he had, on the preceding evening, extracted by turning, while the mother was insensible from the use of sulphuric ether. Its head was flattened, and its right parietal bone was deeply indented, from pressure upon the projecting promontory of the sacrum. [For the other particulars of the case, see the last number of our Journal, p. 639.]

Dr Simpson added, that he had practised turning as an alternative for craniotomy and the long forceps, in several other cases in which the head had been morbidly detained at the brim of the pelvis, from the slighter forms of disproportion between the two; and he believed it to present various advantages over embryulso. It gave the child a chance of life; it was more safe to the mother, because it could be performed earlier in the labour, and more speedily; it enabled us to adjust and extract the head of the child through the imperfect pelvic brim in the most advantageous form and direction, the head flattening *laterally* under the traction; the neck of the child (if it were living, or only lately dead) was so strong as to allow us to exert such a degree of traction upon the obstructed head, that the sides of the cranium might become very greatly compressed, or even indented under it, and that without necessarily destroying the child. And, lastly, he observed, it was a practice which could be followed when proper instruments were not at hand; and the avoidance of instruments was generally desirable when it was possible.

GUTTA PERCHA FOR OBSTETRIC INSTRUMENTS.—*Dr Simpson* showed to the Society some instruments he had made of gutta percha. He alluded to a paper by *Dr D. MacLagan*, in the last volume of the Transactions of the Royal Scottish Society of Arts, in which *Dr M.* first suggested the use to which this substance may be put in forming various surgical apparatus.

The gutta percha, when cold, or at a low temperature, such as that of the body, possesses a great degree of firmness and hardness. On being dipped for a short time into hot water, it becomes quite soft and ductile, and can be moulded into any form with the greatest ease. We may thus easily and speedily fashion from it a pessary, for instance, of any size or form that is required in any particular case. If tried, and found not to be of the proper size or form, it is only necessary to immerse it again in boiling water, after which it can be altered in any way that may be desired. It gets immediately hard on dipping it into cold water. *Dr Simpson* showed several different kinds of pessaries he had constructed in this way, some artificial teats, nipple shields, a catheter, a speculum uteri, &c. He further suggested its use for uterine bougies, handles of forceps, &c., &c.

When in their heated and softened state, a smooth and excellent surface could, when necessary, be given to these instruments of gutta percha, by pressing them against a polished metallic surface or die. *Dr Simpson* added, that instruments of this material presented the advantages, 1. of extreme cheapness; 2. they made us, in a great degree, independent of the cutler, for they could at the moment required, be fashioned, and altered, diminished or enlarged, in part or in whole, at will; and, 3, the country practitioner might always carry along with him a sufficient quantity of the material for making these and other obstetrical and surgical instruments, for, by the aid of boiling water, he could readily convert his walking cane or whip handle into them, provided these accoutrements were made (as now many handsome forms of them really are) of this same substance,—the gutta percha. It is procured in great abundance from some islands in the Torrid Zone.

CASES OF PROLAPUS OF THE CORD TERMINATING FAVOURABLY WITHOUT INSTRUMENTAL INTERFERENCE.—*Mr Woodhead* mentioned a case of prolapsus of the cord, in which he had succeeded in saving the child by administering a large

dose of ergot. The first stage of labour was almost fully over, when he detected the prolapsed cord. The pelvis was large and roomy, and the soft parts well relaxed. After failing to reduce the cord, he gave $\frac{3ii$ of ergot, the pains at the time having got very feeble. They speedily became very active, and, after 20 minutes, the child was expelled alive.

Dr Thomson stated, that in a case of twins, he found, on making an examination after the birth of the first child, that the cord of the second was prolapsed. He was considering what course he should pursue, when strong uterine contractions came on, and expelled the infant alive after a few pains.

IRREGULARITY OF THE PULSE DURING AND AFTER LABOUR.—*Dr Taylor* related the case of a lady who, some days before her accouchement, had slight catarrhal symptoms, and was desired to keep her room; the affection was so slight that the pulse was not examined. *Dr Taylor* did not see her again until labour had commenced, when he found the os uteri well dilated, and every thing going on favourably; her cold was, she said, much better. On feeling her pulse, he found it intermitting, and extremely irregular, sometimes a mere flutter, then one or two distinct beats, then an intermission, and so on. She said that her feelings were perfectly comfortable, no faintishness, nor feelings of sinking, and she was in no way anxious about the results of her labour. The child was born within half an hour, and as the pains increased in severity, the pulse became quite natural. The placenta was soon thrown off without hemorrhage; the pulse, however, almost immediately became as irregular as before, the patient, notwithstanding, complaining of nothing; respiration natural; no cough. She made an excellent recovery, but it was fully a week before the pulse became quite regular. The lady has always enjoyed excellent health, without any previous irregularity of the heart's action; she was neither anæmic nor hysterical. It was her fourth confinement.

ON ETHERIZATION.—Since our last notice of this subject, we see from the foreign journals, and from several private letters addressed to us, that etherization has been employed to prevent pain during operations in all the large cities of Europe. Wherever it has been tried, the great leading fact, namely, that it is capable of doing this, has been confirmed. The physiological action produced by the inhalation, and the propriety of employing it in all cases, however, is still a subject of discussion. Perhaps theoretical views, and exclusive opinions, with regard to it, had better be avoided, until our experience of its effects in different persons, and under various circumstances, has become more extensive. In the meantime, there are two things that should be carefully watched—first, the extension of its application to disease, and painful processes generally; secondly, any injurious effects it may occasion. This latter point is very important, inasmuch as some danger may be anticipated from its too indiscriminate use.

As regards its application, we see that *Dr Willis* has employed it successfully in asthma, and a few other spasmodic diseases. What effect is likely to be caused by it in tetanus, hydrophobia, and other cases of severe spasm? Certainly one of the most interesting applications yet made is that by *Dr Simpson* to women in labour. He has not only performed several midwifery operations without the consciousness of the patient, but has succeeded in removing altogether, in many cases, the severe pain of the latter stage of the process, without in any way interfering with the uterine contractions, or progress of the labour.

Inhalation of ether has occasionally caused alarming results. In some cases convulsions have been produced; in others, great prostration, imperceptible pulse, cold skin, and symptoms of sinking, which have demanded active remedies to restore the individual. These circumstances have tended greatly to embarrass many operations, otherwise simple. One case, in which amputation of the leg was performed during perfect unconsciousness, died a fortnight afterwards

apparently from secondary purulent abscesses in the joints. Yet, in that case, great bronchitis, and double pneumonia, in the second stage, were also found. It is of the utmost importance that all such cases should be put on record, in order that we may be enabled to judge of the ultimate effects of the inhalation. When scrofulous joints are to be operated on, auscultation should determine whether tubercles exist in the lungs. Is their presence opposed to the inhalation?

It may be well to notice another point, in order to prevent a loose phraseology, which we observe has already crept into some reports. By sensation should be understood the consciousness of an impression on the sensitive nerves. Hence, during inhalation, sensation is suspended. Sensibility is the property inherent in nerves of receiving these impressions, which, through the agency of the spinal cord, may excite reflex or spasmodic action, independent of consciousness. Hence, to employ such terms as "the loss of sensation in a limb," is incorrect. Sensation does not exist in a limb; it is the combined result of spinal and cerebral action. Sensibility is the property which may be increased, diminished, or lost in parts, with or without consciousness, and consequently with or without sensation.

THE LATE DR DAVIDSON.

Want of space compelled us to omit, in our last number, a notice of the death of this distinguished Physician and amiable man. Dr Davidson has been long esteemed by the medical profession in Edinburgh, for the qualities most essential to the character of a consulting Physician. He was possessed of a profound and ready knowledge of diseases and modes of treatment, a rare sagacity and discrimination in the midst of difficulties, an easy kind and affable manner, alike agreeable to the patient and to the practitioner. His practice was of late years as extensive as was permitted by his bodily strength, which had become somewhat enfeebled. He had great activity of mind, and till the moment of his fatal illness, showed the liveliest interest in whatever concerned either the public health and welfare, or the particular objects of the medical profession. He took an active part in the business of the Royal College of Physicians, he had twice filled the Presidentship to the general satisfaction of the Fellows—and, had his strength been equal to the exertion, he would have been called a third time to the office. At the time of his death he was first Physician to the Queen for Scotland.

He was in the truest sense of the word an accomplished scholar. With ancient literature he was familiar; and, besides, not only with English literature, but with that of France, Italy, and Germany. Few books issued from the press, of any pretensions to merit, whether on general or professional subjects, with which he did not become acquainted.

Though still able for the duties of his profession, he had been complaining of weakened health for some weeks before the termination of the year. On one of the last days of December, he had an attack which seemed at first to be of a bronchitic nature, but which turned out to be pneumonic, and proved fatal on the evening of the 4th January. Dr Davidson was about sixty years of age. His death has caused among all who had opportunities of knowing his many excellencies, a deep feeling of regret that so great an ornament to the Medical Profession should have been cut off before he had completed a fuller measure of years and a longer career of usefulness.

TO CORRESPONDENTS.

Communications have been received from Dr Allen Thomson, Mr Toynbee, Dr Begbie, Dr Davidson of Corstorphine, Dr J. Henry Bennet, and Dr Toogood.

ORIGINAL COMMUNICATION.

Notes on the Employment of the Inhalation of Sulphuric Ether in the Practice of Midwifery. By J. Y. SIMPSON, M.D., Professor of Midwifery in the University of Edinburgh.

ABUNDANT evidence has of late been adduced, and is daily accumulating, in proof of the inhalation of sulphuric ether being capable, in the generality of individuals, of producing a more or less perfect degree of insensibility to the pains of the most severe surgical operations. But whilst this agent has been used extensively, and by numerous hands, in the practice of surgery, I am not aware that any one has hitherto ventured to test its applicability to the practice of midwifery. I am induced, therefore, to hope that the few following hurried and imperfect notes, relative to its employment in obstetric cases, may not at the present time prove uninteresting to the profession.

Within the last month I have had opportunities of using the inhalation of ether in the operation of turning, in cases of the employment of the long and of the short forceps, as well as in several instances in which the labour was of a natural type, and consequently required no special form of artificial aid.

The first case in which I employed the ether vapour, occurred on the 19th of January. Some details of the result have been already published in the last number of this Journal (see p. 639). The pelvis of the mother was greatly contracted in its conjugate diameter from the projection forwards and downwards of the promontory of the sacrum; the lumbar portion of the spine was distorted; and she walked very lamely. The present was her second confinement. Her first labour had been long and difficult; she began to suffer on a Monday, and after a protracted trial of the long forceps, was at last delivered by craniotomy late on the subsequent Thursday night. Even after the cranium had been fully broken down, a considerable time and much traction had been required to drag the diminished and mutilated head of the infant through the contracted brim of the pelvis; and she was long in recovering. Contrary to the urgent advice of her medical attendant, Mr Figg, he was not made aware of her present or second pregnancy till she had arrived at nearly the end of the ninth month. It was thus too late to have recourse to the induction of premature labour, which had been strongly pressed upon her as the only means of saving her child, should she again fall in the family way. The pains of her second labour commenced in the forenoon of the 19th. I saw her with Mr Figg at five o'clock in the afternoon, and again at seven. The os uteri was pretty well dilated, the liquor amnii not evacuated, the presenting head very high, mobile, and difficult to touch; and a pulsating loop of the umbilical cord was felt floating

below it in the unruptured bag of membranes. From five to nine o'clock the pains seemed only to push the circle of the os uteri further downwards, without increasing its dilatation, or making the head in any degree enter into the pelvic brim. Assisted by Dr Zeigler, Dr Keith, and Mr Figg, I shortly after nine o'clock made the patient inhale the ether vapour. As she afterwards informed us, she almost immediately came under the anodyne influence of the ether. But in consequence of doubts upon this point, its use was continued for nearly twenty minutes before I proceeded to turn the infant (as I had previously predetermined to do). A knee was easily seized, and the child's extremities and trunk readily drawn down; but extreme exertion was required in order to extract the head. At length it passed the contracted brim with the anterior part of its right parietal bone deeply indented by pressure against the projecting promontory of the sacrum, and the whole cranium flattened and compressed laterally. The infant gasped several times, but full respiration could not be established. The transverse or biparietal measurement of its head, at the site of the indentation, was, in its compressed state, not more than $2\frac{1}{2}$ inches. Hence we judged the conjugate diameter of the pelvic brim not to exceed this. The infant was large, and rather above the usual size. It weighed 8 lbs. On afterwards examining the head and removing the scalp, no fracture could be found at the seat of the indentation. The thin parietal bone had merely bent inwards.

On questioning the patient after her delivery, she declared that she was quite unconscious of pain during the whole period of the turning and extracting of the infant, or indeed from the first minute or two after she first commenced to breathe the ether. The inhalation was discontinued towards the latter part of the process, and her first recollections on awaking were "hearing," but not "feeling," the head of the infant "jerk" from her (to use her own expressions), and subsequently she became more roused by the noise caused by the preparation of a bath for the child. She quickly regained full consciousness, and talked with gratitude and wonderment of her delivery, and her insensibility to the pains of it. Next day I found her very well in all respects. I looked in upon her on the 24th (the fifth day after delivery), and was astonished to find her up and dressed, and she informed me that on the previous day she had walked out of her room to visit her mother. Mr Figg informs me that her further convalescence has been interruptedly good and rapid.

I have previously alluded to two cases of delivery by the forceps, in which the patients were under the action of ether at the time of the operation. The woman in the first of these cases was brought into the Royal Maternity Hospital, in strong labour, early on the morning of the 3d February. It was her second confinement. At her first accouchement (seven years before), she had been delivered by instruments, in Ireland, and had been informed by the attendant practitioner, that artificial delivery would be similarly required at her future labours. I saw her between ten and eleven o'clock A.M. The os uteri was well dilated, the membranes ruptured, and the pains

extremely strong and frequent; but the large head of the child seemed not to enter fully into the brim, and was little affected by the powerful uterine contractions under which the patient was suffering. By three o'clock her pulse had risen to above 125 beats a minute, and it appeared to the medical officers present, that it would be improper to allow the ineffectual and exhausting efforts of the patient to be longer continued. She was then, at my request, brought under the influence of ether. Dr Moir, with great skill, applied the long forceps upon the head of the child. He subsequently was obliged to use strong traction during the pains that followed, and becoming temporarily fatigued with his efforts, I supplied his place. After the head fully passed the brim, the forceps were laid aside, and one or two uterine contractions finished the delivery. The child was large and strong, and cried vigorously soon after it was expelled. During the whole of this severe operation the patient appeared quiet and passive. The cries of her child speedily roused her from her etherized state, and she subsequently assured Dr Moir that she had felt comparatively little or no pain during the whole operation and delivery.

On the evening of the 12th February, I saw another forceps case with my friend, Dr Graham Weir. The patient was advanced in life, and it was her first confinement. The waters had escaped early, and the anterior lip of the uterus had subsequently become forced down in a very swelled and œdematous state before the head of the infant. After this obstruction was overcome, the child's head speedily descended upon the floor of the pelvis; but it was there impeded in its further progress by the narrow transverse diameter of the outlet. Under the compression of the converging tuberosities of the ischia, the bones of the foetal cranium soon began to overlap; but at last, no further progress being made, the patient becoming exhausted by a continuous labour of about twenty-four hours, and the soft parts being evidently well relaxed and prepared, Dr Weir applied the short forceps, and extracted a living infant. For a considerable time before this operation was adopted, I exhibited the vapour of ether to the patient; under it she speedily became quite narcotized. Its action was kept up, and the pains appeared to be so strong as almost to warrant the idea that nature would yet be sufficient; but ultimately, instrumental delivery was, as I have already stated, had recourse to. The mother did not fully recover from her state of etherization for ten or fifteen minutes after delivery, and then stated that she was quite unaware of anything that had been done, and of what had occurred.

As far as they go, the preceding cases point out one important result. In all of them, the uterine contractions continued as regular in their recurrence and duration after the state of etherization had been induced, as before the inhalation was begun.—The emotion of fear has appeared to me to suspend, in one or two nervous patients, the recurrence of the first pains, after the apparatus was adjusted and its employment commenced; but this effect speedily passed off; and as yet I have seen no instance in which the pains were sensibly diminished in intensity or frequency after the ether

had fairly begun to act.—Indeed, in some cases they have appeared to me to have become increased as the consciousness of the patient was diminished. This has more particularly occurred with one or two patients, who breathed ether, combined with tincture of ergot, or containing a solution of its oil. A woman was brought into the Maternity Hospital on the 28th February, after being in labour for 30 or 40 hours. It was her second child. Subsequently to her entering the hospital, at seven P.M., scarcely any decided uterine contraction could be said to take place. The os uteri was well opened, but the head was still high in the pelvis; and when I saw her at four A.M. of the following morning, nine hours after her entrance into the hospital, little or no advance whatever had been made, and the case was becoming an anxious one. She was then made to inhale equal parts of sulphuric ether and tincture of ergot. In the course of a few minutes a series of extremely powerful uterine contractions supervened, and the child was born within a quarter of an hour of the commencement of inhalation. The mother subsequently declared that she recollected nothing at all of her delivery, except the removal of the after-birth. In this case, was the re-excitement of strong pains the result of the action of the sulphuric ether, or of the ergot, or of both? Or was it a simple but very strange coincidence? More facts than I yet possess are necessary to decide such a question; but I have seen some cases which lead me to believe that other therapeutic agents besides those I have named may be readily introduced into the system by means of pulmonary inhalation.¹

A more extensive and careful series of investigations than I have yet been able to institute, may perhaps show that in some constitutions, and under some circumstances or *degrees* of intensity, the process of etherization may possibly interfere with the uterine contractility, particularly in the earlier stages of the labour. At the same time, various analogies would lead us to expect that, as I have hitherto found, the action of the uterus would go on uninterruptedly, when the psychical influence of the mind and purely cerebral functions was suspended, as in the more complete states of etherization. At all events, if we may judge from the analogous

¹ Dr Richard Pearson, who, in 1795, was, I believe, the first person that recommended the inhalation of sulphuric ether as a therapeutic agent (see his *Account of the Nature and Properties of different kinds of Airs*, p. 24) suggested also the use of it impregnated with opium, squill, cicuta, &c.; and he speaks of the effect of "an emetic given in this manner." He employed the simple sulphuric ether vapour in some cases of phthisis, asthma, hooping cough, croup, and catarrh, recommending it to be inhaled, after being rectified and washed, from a cup, through an inverted funnel, or, with children, by "wetting a handkerchief with it, and holding it near the nose and mouth." See Fort Simmons' *Medical Facts and Observations*, vol. vii. p. 96. In the 13th volume of the *Dictionnaire des Sciences Medicales* (1816) p. 385, Nysten has described a particular apparatus, like some of our modern forms, for the inhalation of sulphuric ether. See also vol. xvii. p. 134. Vaporizable substances, when introduced into the system in this manner, probably pass undigested and unchanged into the circulation, and "seem (observes Wagner) to make their way into the blood through the unbroken vascular membrane [of the bronchial cells] with the same certainty and ease as when they are injected *directly* into the veins" (*Elements of Physiology*, 1842, p. 443.) Will this not explain both the rapidity and intensity of their action when thus used?

experiments of Vollkmann, Bidder, Kölliker, and others, upon the simple contractions and rhythmic actions of the heart, intestines, &c., the motory nervous powers of the uterus belong to the ganglionic and to the spinal systems, and are not in any necessary dependence upon the brain or mind. Indeed, Ollivier and Nasse have published cases of perfect paraplegia, notwithstanding which the act of parturition in the human female proceeded regularly in its course, and without conscious pain. In the one case (Ollivier's), the cord was compressed and destroyed from the first to the fourth dorsal vertebra by a collection of acephalo cysts;¹ and, in the other instance (Nasse's), complete paralysis had followed a fracture of the third and fourth cervical vertebræ.² Of course such lesions necessarily prevented the brain exerting any influence upon the uterus, or its contractions.

Long ago, in discussing this subject, Haller adduced the authority of Harvey, Smellie, Lamotte, &c., to prove that uterine contractions and labour may go on with the mother, "*ignara, stupida et sopita, et immobili, et apoplectica, et epileptica, et convulsionibus agitata,*"³ *et ad summum debili.*"⁴ Deneux mentions a fact still more in point, because in it the analogy with the operation of ether is still stronger, or indeed identical. "A woman," says he,⁵ "was brought to the Hotel Dieu at Amiens in a comatose state, in consequence of her taking spirituous liquors since the commencement of labour. She was delivered in the natural manner in this state; the sleep continued for some time after delivery. The woman, on awaking, much surprised at finding her delivery completed, congratulated herself on having made so happy a discovery, and declared she would make use of it if she had again occasion."⁶

In obstetric as in surgical practice, the degree of insensibility produced by etherization, and its accompanying phenomena, differ much in different instances. In some, a state of total apathy and

¹ *Traité de la Moelle Epiniere*, p. 784.

² *Untersuchungen zur Physiologie*, &c. — Dr Cheyne reports a case of fatal hemorrhagic apoplexy and hemiplegia, in which, without any apparent pains, "the uterus (observes Dr Kellie) appears, as an involuntary muscle, to have acted in the most perfect manner in expelling the fœtus and secundines," the day before death. The child was born alive. Cases of Apoplexy and Lethargy, p. 91 and 161.

³ "During the continuance of puerperal convulsions, uterine action is *not* suspended, although no signs of pain are manifested by the woman, if she remain comatose." Dr F. Ramsbotham's *Obstetric Medicine* (1844) p. 455.

⁴ *Elementa Physiologiæ*, tom. viii. p. 420.

⁵ *Recueil Periodique de la Société de Médecine*, April 1818.

⁶ The celebrated case of the Countess de St Geran is sufficiently remarkable in relation to the present subject. See full and long details of it in Gayot's *Causes Celebres*, tom. i. p. 142 to 266. After the Countess had been nine hours in labour with her first child, the midwife in attendance exhibited to her a potion (*breuvage*), which rendered her insensible till the following morning. When the Countess then awoke to consciousness, she found herself bathed in blood, the abdominal tumour fallen, and all the signs of recent delivery present; but the child born during her state of insensibility had been removed, and its existence was even denied to her. It was years afterwards proved, to the satisfaction of the French law courts, that the Countess had been delivered of a male child during an induced lethargic condition, and that the infant had been surreptitiously conveyed away to a distance, and brought up as the son of a poor man. The child's claims were, after much litigation, fully acknowledged, he was restored to his parents, and ultimately succeeded to his father's title. What Nephthcan "*breuvage*" could possibly produce the alleged effect?

insensibility seems to be produced; others move about and complain more or less loudly during the uterine contractions, though afterwards, when restored to their state of common consciousness, they have no recollection of any suffering whatever, or, indeed, of any thing that had occurred during the inhalation and action of the ether; others again, remain quite aware and conscious of what is going on around them, and watch the recurrence of the uterine contractions, but feel indifferent to their effects, and not in any degree distressed by their presence; and in another class again, the attendant suffering is merely more or less diminished and obtunded, without being perfectly cancelled and annulled.

On the evening of the 13th inst, in two cases that rapidly followed each other, I witnessed, in the above respect, two very different conditions induced by the use of the ether. The patients (who each had borne several children previously) were both placed under the influence of it just as the os uteri became fully opened, and in neither did the full expulsion of the infant through the pelvic passages require above twelve or fifteen minutes. My first patient (the wife of a clergyman) subsequently stated, that she knew all that was said and done about her, was aware of the pains being present, but felt no distress from any of them till the super-vention of the last strong contraction which drove the head out of the vulva, and the feeling then seemed to partake of the character of strong pressure, rather than of actual pain. Subsequently she told me, she could only look back with regret to the apparently unnecessary suffering she had endured in the birth of her former infants. The second patient, a lady of a timid temperament, and very apprehensive about the result of her present confinement, was induced with difficulty to inhale the ether vapour; but it speedily affected her when once she did begin. In two or three minutes she pushed the apparatus from her mouth, talked excitedly to a female relative present, but was immediately induced to recommence the inhalation; and subsequently, according to her own statement, "wakened out of a dream, and unexpectedly found her child born." Like many others, she thought hours instead of minutes had elapsed, from the commencement of the inhalation to the period of the complete restoration of consciousness. Making apparently an effort of memory, she afterwards inquired if she had not once awakened out of her dreamy state, and spoken some nonsense to her friend.

A careful collection of cautious and accurate observations will no doubt be required, before the inhalation of sulphuric ether is adopted to any great extent in the practice of midwifery. It will be necessary to ascertain its precise effects, both upon the action of the uterus, and of the assistant abdominal muscles; its influence, if any, upon the child; whether it gives a tendency to hemorrhage or other complications; the contra-indications peculiar to its use; the most certain modes of exhibiting it; the length of time it may be employed, &c.¹ In no case have I observed any harm whatever

¹ I have, during labour, kept patients under its influence for upwards of half an hour. In exhibiting it, the first, or exhilarating stage of its effects should be passed

to either mother or infant, follow upon its employment. And, on the other hand, I have the strongest assurance and conviction, that I have already seen no small amount of maternal suffering and agony saved by its application. The cases I have detailed sufficiently show its value and safety in cases of operative midwifery. And here, as in surgery, its utility is certainly not confined to the mere suspension and abrogation of conscious pain, great as, by itself, such a boon would doubtlessly be. But in modifying and obliterating the state of conscious pain, the nervous *shock* otherwise liable to be produced by such pain, particularly whenever it is extreme, and intensely waited for and endured, is saved to the constitution; and thus an escape gained from many evil consequences that are too apt to follow in its train.¹ Granting that experience will yet be able to prove its safety and efficacy in modifying and annulling the pains of labour, will (I have repeatedly heard the question asked) the state of etherization ever come to be generally employed with the simple object of assuaging the pains of *natural* parturition? Or (as the problem has not unfrequently been put to me) would we be "justified" in using it for such a purpose? In conclusion, let us consider this point for a moment.

Custom and prejudice, and, perhaps, the idea of its inevitable necessity, make both the profession and our patients look upon the amount and intensity of pain encountered in common cases of natural labour, as far less worthy of consideration than in reality it is. Viewed apart, and in an isolated light, the degree of actual pain usually endured during common labour is as great, if not greater, than that attendant upon most surgical operations. I allude particularly to the excessive pain and anguish, which in nine out of ten cases accompany the passage of the child's head through the outlet of the pelvis and external parts. Speaking of common or natural labour in its last stages, Dr Merriman observes, the pulse gradually "increases in quickness and force; the skin grows hot; the face becomes intensely red; drops of sweat stand upon the forehead; and a perspiration, sometimes profuse, breaks out all over the body; frequently violent tremblings accompany the last pain, and at the moment that the head passes into the world, *the extremity of suffering seems to be beyond endurance.*"²

through as rapidly as possible, and the patient never allowed to be excited or irritated by the nurse or others. I have heard its use strenuously denounced on the ground that its effects, though good, are still of an intoxicating character. But on the same ground, the use of opium, &c. &c., in medicine, to relieve pain, and procure sleep, should be equally reprobated and discarded.

¹ On what division or divisions of the nervous system does the nervous shock operate—the cerebral, spinal, or ganglionic? If on the former, it should be kept in abeyance by due etherization. I once saw Dr Robertson amputate, at the shoulder joint, an arm sadly shattered an hour or so before by a railway injury. The man received the injury, during the operation, and for several hours afterwards, when he was in a state of insensibility from deep intoxication; and at last wakened up, not knowing what had happened. His recovery was rapid and uninterrupted. Would it have been so if his nervous system had been sufficiently alive to the double shock of the operation and injury? Out of eighteen cases of primary amputation, mentioned in Dr Peacock's Report, and performed during four years in the Edinburgh Hospital, this man and another patient were the only two that survived.

² Synopsis of Parturition, p. 15.

Or, take the picture of the suffering of the mother in the last stage of natural labour, as portrayed by the most faithful of living observers—Professor Naegele of Heidelberg—"The pains (he observes) of this stage are still more severe, painful, and enduring; return after a short interval, and take a far greater effect upon the patient, than those of the previous stage. Their severity increases so much the more from the additional suffering arising from the continually increasing distention of the external parts. They convulse the whole frame, and have hence been called the *dolores conquassantes*. The bearing down becomes more continued, and there is not unfrequently vomiting. The patient quivers and trembles all over. Her face is flushed, and with the rest of the body, is bathed in perspiration. Her looks are staring and wild; the features alter so much that they can scarcely be recognised. Her impatience rises to its maximum with loud crying and wailing, and frequently expressions which, even with sensible, high principled women, border close upon insanity. Everything denotes the violent manner in which both body and mind are affected."¹

I have stated that the question which I have been repeatedly asked is this—will we ever be "justified" in using the vapour of ether to assuage the pains of natural labour? Now, if experience betimes goes fully to prove to us the safety with which ether may, under proper precautions and management, be employed in the course of parturition, then, looking to the facts of the case, and considering the actual amount of pain usually endured (as shown in the above descriptions of Merriman, Naegele, and others),² I believe that the question will require to be quite changed in its character. For, instead of determining in relation to it whether we shall be "justified" in using this agent under the circumstances named, it will become, on the other hand, necessary to determine whether on any grounds, moral or medical, a professional man could deem himself "justified" in withholding, and *not* using any such safe means (as we at present pre-suppose this to be), provided he had the power by it of assuaging the agonies of the last stage of natural labour, and thus counteracting what Velpeau describes as "those piercing cries, that agitation so lively, those excessive efforts, those inexpressible agonies, and those pains apparently intolerable,"³ which accompany the termination of natural parturition in the human mother.

EDINBURGH, FEBRUARY 1847.

¹ Lehrbuch der Geburtshülfe, p. 104. See British and Foreign Medical Review, vol. xix. p. 64.

² Dr Rigby in his System of Midwifery, p. 103, observes, "This is the moment of greatest pain, and the patient is quite wild and frantic with suffering; it approaches to a species of insanity," &c.

³ Traité des Accouchemens, vol. i. p. 449. "Ces cris percans, cette agitation si vive, ces efforts excessifs, ces angoisses inexprimables, ces douleurs qui parassaient intolérables," &c.

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Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Notice of several Cases of Malformation of the External Ear, together with Experiments on the State of Hearing in such Persons.* By ALLEN THOMSON, M.D., Professor of Physiology in the University of Edinburgh.

(Continued from p. 425.)

ALTHOUGH it is generally understood that sounds may reach the seat of hearing by direct transmission through the bones of the head, more especially when sounding bodies are brought into contact with any of the hard parts, it appears to me that the extent to which sounds may, in this manner, be heard, is usually underrated, and has not been determined with sufficient accuracy.

The history of the individuals affected with congenital closure of the external passage of the ear, whose deformity was described in the first part of this paper, illustrates this mode of transmission of sonorous vibrations in a striking manner, and also exhibits some other peculiarities in the function of hearing, which appear deserving of notice.

In all of the three individuals alluded to, the closure of the external meatus was so complete, as to render impossible the transmission of sounds to the tympanum through air alone. Dissection has shown that, in some similar cases, not only is the outer passage closed, but the bony part of the meatus, and the membrana tympani are absent; and it seems probable that the same state of the parts exists in two at least of the individuals referred to in the

present paper. The cavity of the tympanum itself, it appears, is not entirely absent, but its size is reduced considerably below that which is natural. The chain of small bones is imperfectly formed, and wants that disposition which, in the natural state, fits it so admirably for facilitating the transmission of sonorous vibrations from the external air to the fluid of the labyrinth, that is, the abutment of one of its extremities, the malleus, against the membrana tympani, while its other rests by the base of the stapes, on the membrane of the fenestra ovalis of the labyrinth. In fine, it appears highly probable, that in all of these individuals the Eustachian canal is present, and transmits air into the cavity of the more or less imperfect tympanum.

Yet, notwithstanding this very imperfect condition of the accessory parts of the auditory organ in these three individuals, the power of hearing was considerable; such, indeed, that a conversation could be kept up with them all, and only in one of them with any difficulty.

In persons, therefore, affected with such a malformation, the internal ear, or the auditory nerve, as the immediate seat of the sensation, is affected by sounds entirely through the hard parts of the head, whether the sonorous vibrations are communicated directly to these parts by contact, or, as in common conversation, only through the medium of the air, and their subsequent communication to the hard parts of the head.

In those in whom the hearing is perfect, the external meatus and tympanic apparatus are so much the more frequent and perfect channel of communication of sound to the internal ear, that we are apt to neglect the more direct mode of transmission of sounds through the bones of the head. This last is, nevertheless, constantly in operation, and is the cause of several interesting phenomena of the function of hearing. It is forcibly brought under our notice by the examples of deformity now in review; it also becomes obvious in all those whose hearing is impaired by mere disease of the external passages, that is, without closure; and it may also be made apparent by a very simple experiment, in those whose organs of hearing are perfect.

The experiments I am about to describe are founded upon the fact, that sounds transmitted by contact of the sounding body directly to the head, or other hard parts, appear louder when the external meatus is closed. This fact is rendered familiar to many by the common experiment of suspending a rod of metal, or other sounding body, by a cord, which, in passing over the finger, is brought in contact with some part of the head, the ears being closed at the same time by the hands, while the iron is struck against some other bodies; the sounds are thus rendered much more intense than they appear when heard with the meatus open. In using the musical tuning-fork, the following experiments may be more accurately performed:—

Place the tuning-fork, while sounding, in contact with the middle of the top of the head, with the ears open, and it will be heard only faintly; then close the external ears, and the intensity of the sound will appear much greater, indeed almost doubled. If one ear only be closed, the intensity of the sound in the shut ear will appear so much greater, that the sound seems chiefly to be heard in that ear, and this to a remarkable degree; for even if the tuning-fork be applied to the head, close to the open ear (provided it does not touch the external auricle), the sound will appear to travel over to the opposite ear, the meatus of which is closed. We can even trace, by our sensations, the way which the sound seems to take to gain the opposite side. When the tuning-fork, for example, is applied to any part of the skull, at a little distance from the open ear, the sound will appear to travel over the top of the head; but when applied close to the open ear, that is, towards the base of the skull, it seems as if the sensation of the vibration passed through the base to gain the opposite side.

Professor E. H. Weber, of Leipzig, to whom we owe an accurate description of this phenomenon, attributes the increase of sound to the resonance of the confined air of the meatus and tympanum, or to the vibrations established in this column of air, rendered a separate system in consequence of its enclosure. I find that the increased intensity is still produced by shutting one or both of the meatus, when water has also been introduced to take the place of its air. And this is the case when there is merely water introduced, without the additional use of the soft waxen plugs employed in the other experiments. The explanation of independent vibration of the confined medium might be allowed to apply to water as well as to air; but, although I am not prepared to offer a better, I confess it does not appear to me to account satisfactorily for all the phenomena.

To illustrate fully the relation existing between the transmission of sounds through the meatus, and that through the hard parts of the head in persons whose hearing is natural, let the tuning-fork, sounding as nearly as possible with equal intensity each time, be placed in the following positions—first, with the ears open, held close to one meatus without touching, the most perfect (that is the clearest and loudest) sound will be thus obtained; second, shut the meatus of one or both ears, and hold the tuning-fork close to the shut ear, and its sound will scarcely be heard. Third, shut both ears, and apply the tuning-fork by contact to the vertex of the head, when it will be heard nearly as loud as when close to the open meatus, and it will be heard with nearly equal intensity in both ears. Fourth, shut one meatus only, and when the tuning-fork is applied to any part of the head, a sound of less intensity than in the last case, will be heard, but proportionally so loud in the closed ear, that it requires a considerable effort of attention to enable us to perceive the impression in the other or open ear. Fifth, to render

this still more striking, hold the tuning-fork opposite, and very near one open meatus, a loud and distinct sound will be heard; shut the opposite ear, and apply the tuning-fork by contact to the head near the open ear, and the sound is now heard louder in the closed ear than it was before by the open one, and is scarcely perceived in the latter.

In making similar experiments on persons deaf of one ear, from affection of the tympanum or Eustachian tube, an unexpected circumstance occurred, viz., that the sound of the tuning-fork applied to the head appeared, as in the previous experiments on closing the meatus, much the loudest in the deaf ear. This may not occur in all, but in four out of five such persons in whom I have made the trial, the result was as I have now stated it; and it can scarcely be held that this greater intensity of sounds felt through the deaf ear was merely the effect of its being unusual.

The study of the partially deaf is of peculiar interest, not only for the physiological elucidation of the functions of the ear, but also practically with a view to the adoption of means for the improvement of hearing in them. I refrain from alluding in this place to the medical or surgical treatment applicable to cases of partial deafness. I shall only make the remark, that it seems probable from recent observations, that the amount to which improvement may proceed from medical treatment, has been much exaggerated. In restricting myself entirely to the acoustic view of the state of the partially deaf, it is apparent that in case of failure to obtain any improvement by medical or surgical treatment, essential service may still be rendered them by bringing them within the range of hearing through other means.

Dumbness is known usually to proceed from deafness, either existing from birth or arising early in life. The exceptions to this are very rare, and occur only from defective formation of the organs of voice and speech, or from disease of the brain. In the case of dumbness arising from total congenital deafness, sounds can never be associated with ideas, and, consequently, feelings, emotions, actions, and the names of objects, or description of their qualities and states, must find a language in natural gesture, or in conventional written and manual signs. In the second case, that, viz. of total deafness coming on later in life, even if speech shall already have been acquired, it may be gradually lost, in consequence of the want of habit to associate sounds with speech. This occurs only, however, in early life, when the habit of speech has not been fully impressed on the memory. I am informed by Mr Kinniburgh that it rarely happens that dumbness is entailed by deafness so late as the tenth or eleventh year, and that the extent to which this may occur will depend very much on the circumstances in which the individual is placed. In those who become only partially deaf, but to such an extent as to incur the risk of becoming also mutes, it seems probable that much of the power of retaining voice and

speech, or of regaining it, may depend on a very small difference in the amount of hearing; and I am inclined to think that much more might be done than has yet been attempted, in a certain proportion of such cases, by assisting the hearing through the hard parts of the head, or by other means. Indeed, it seems surprising, considering how long it has been known that in some deaf persons the hearing of sounds is improved by promoting their transmission through the bones of the head, that an apparatus, calculated to facilitate this mode of communication of the sonorous vibrations, has not been employed in place of the ear-trumpet, which can be of comparatively little service to them. The experiments which I have made upon the partially deaf, lead me to divide them into two classes, according as their hearing is in the one set most perfect through the meatus, or in the other, through the bones of the head, a difference which may at once be ascertained by means of the tuning-fork. In those hearing best through the hard parts of the head, it has long been known that the air passages, or accessory parts of the organ principally are affected. In those partially deaf persons, on the other hand, who hear best by the meatus, it appears very probable that in general an affection of the internal ear, or loss of sensibility of the auditory nerve, is the cause of deafness.

In these last, the ear-trumpet is of essential service, by concentrating all the weaker vibrations in the passage which is to carry them to the nerve, whose sensations are deadened. In the former the meatus should be closed, and every means ought to be used, as by sounding-boards to collect, and solid elastic rods to conduct, the vibrations to the hard parts of the head.

In connexion with the mode of hearing now under consideration, it is also proper to observe, that the sounds of a person's own voice are heard chiefly through the hard parts of the head, the vibrations being communicated directly to them from the cartilages of the larynx, &c. We accordingly find that one's own voice, like all other sounds arriving through the hard parts of the head, appears louder when the external passages are stopped. The loss of speech, then, in mutes, from deafness, depends in a considerable degree on their inability to hear, and, consequently, to regulate the sounds of their own voices. Hence we find occasionally speech preserved to some extent in persons whose hearing is not sufficiently acute to enable them to follow what is said by others, unless in very loud bawling, and hence, in one at least of the cases of closure of the meatus before us, that is Miss R., who hears least well of all of them, speech has been retained, while she is habituated to hear few words spoken by others, who find it necessary, in general, to employ the finger signs for the purpose of communicating with her.

By the complete closure of the meatus we reduce our organs of hearing nearly to the condition of that of animals living in water, as fishes and aquatic amphibia; and accordingly when the head is immersed in water, and that fluid allowed to enter the meatus, it

is well known that all sonorous vibrations which affect the water externally, and even those at a great distance, are heard with distinctness by the person so immersed.

It might be supposed that in our cases of absence of the meatus and membrana tympani, the individuals heard in the same manner as fishes—but this is not precisely so, for in aquatic animals there is no cavity of the tympanum nor Eustachian tube admitting air into it; while this part of the apparatus is not prevented from acting by the closure of the meatus in ordinary persons; and there is reason to believe the tympanum and Eustachian tube to be also present in those affected with absence of the meatus and membrana tympani. In such individuals, consequently, not only are the auditory nerves of the vestibule, semicircular canals, and cochlea affected by sounds arriving through the hard parts of the head, but sonorous vibrations must also pass from these hard parts to the air within the cavity of the tympanum, and thus affect both secondary membranes, that is those of the fenestra ovalis of the vestibule and fenestra rotunda of the cochlea.

It might be interesting to inquire, here, whether the facts now brought under our notice throw any light on the obscure but most interesting subject of the functions of the different parts of the labyrinth; but it is not very obvious that they do so, unless, in adding probability to the view taken by Weber, that the cochlea constitutes in all animals provided with a tympanum, that part of the labyrinth in which the greatest number of nervous filaments are most favourably disposed within a narrow space for receiving sounds directly from the hard parts of the head, or mediately from the air of the tympanum affected by the vibrations of these solid parts.

In making various experiments upon the individuals whose history forms the subject of the first part of this paper, a remarkable difference presented itself in the mode of hearing of two of them, viz. the lad B. and Miss R., from what occurs in most other persons.

In almost all those in whom I have tried the experiment, sounds of vibrating bodies applied to the hard parts of the head, like those vibrating in the external air, appear louder the nearer the place at which the sounding body applied is to the seat of hearing. This every one knows is the case with the ears open, and it may be ascertained with great ease when the ears are plugged, by the comparison of any sound of uniform intensity, such as the ticking of a watch, or sound of the tuning-fork applied at different parts of the head, and still more exactly, by the following modification of the experiment.

After the ears have been filled with water and plugged, or simply plugged with soft wax, apply the tuning-fork to the vertex, or some part of the head remote from the ears, and keep it there till the sound is no longer heard, then bring it down towards the meatus, and on applying it to any part nearer the meatus than before, the sound will be again heard, a result which removes any objection

to the former experiment, that could be founded on the difficulty of our comparing the intensity of successive sounds, and excludes also the supposition, that the greater intensity which sounds appear to have in the former experiments, is a mental illusion depending on our habitual association of louder sounds with the vicinity of the ear.

It was found, however, in the first experiments made upon the lad B. by Professors Forbes and Miller and myself, and I have since observed the same in Miss R., that sounds were heard loudest not near the seat of the organ of hearing, but invariably upon the vertex of the head.

In a series of experiments performed upon the lad B., in Professor Forbes' class-room, in company with Professors Forbes and Miller, and Dr Spittal, it was found, that the tuning fork was heard best when applied to the vertex of the head,—next best farther back on the middle line or near the occiput, and least well near the site of the external ears. Exactly the same result was obtained in experiments with an organ pipe sounded opposite to these different situations, without its being allowed to touch the head. In repeated trials subsequently made in company with Professor Miller, I found, that while the lad B. heard my watch ticking at a distance of five or more inches above the top of the head, he was unable to detect its sound at a distance of only half an inch opposite to either of the external ears, and not indeed, till it was firmly pressed upon this part of the head. It was also found, that when the watch was brought into contact with, or pressed upon any part of the head, its sounds were most audible in the situations in which he heard the organ pipe or tuning fork best, that is over the vertex and occiput.

The experiments upon the girl at Falkirk, were not attended with a similar result. She hears best over the site of the ear. But, in this girl it will be recollected, that Dr Dewar when he performed the operation upon her, uncovered something resembling a *membrana tympani*, and that the power of the two ears is very unequal,—circumstances which make me regard her case as in some respects different from those of the lad B. and Miss R.

The only other instance in which I have found the more perfect hearing of sounds conducted directly to the head to be more perfect at the vertex than near the ears, is that of a girl at present a pupil in the Glasgow Institution for the Deaf and Dumb.

This girl was very deaf from birth, but not entirely so. She is dumb, however, or articulates only very imperfectly. Her defect of hearing is of that nature, belonging principally, though by no means exclusively, to the external passages, that she hears sounds through the hard parts of the head which are altogether inaudible by the meatus, and I was surprised to find that she heard both the ticking of a watch and the sound of the tuning-fork better when they were applied to the top of the head than in any other situation.

I could not ascertain that any very obvious disease of the tympanum existed in this girl, and I am unable at present to offer any

satisfactory explanation of the phenomena observed. In how far a peculiarity in the disposition of the bones of the head may account for it, I would not pretend to decide; but I am more inclined to believe, that the difference now pointed out as existing between the mode of hearing of this girl together with the lad B. and Miss R., and that of other persons, is to be ascribed to some change of the structure of the ear itself. It is possible that it may depend upon both ears being simultaneously affected with an impression of equal intensity when they arrive by the vertex of the head.

The degree to which even weak sounds are transmitted to the ear through the hard parts of the body as well as of the head, in the persons whose history we are now considering, appeared to me remarkable. In the case of the lad B., for example, a watch which had only a weak sound, was distinctly heard by him when it was held in his hand, or was placed on the spine, or pressed on the haunch bone; and in Miss R. weak sounding bodies are heard even when pressed on the ankles. She not only feels the vibrations by the nerves of touch, but also hears the sound of the clock striking in the next room, in this way chiefly through the walls and floor. From habit and cultivation, or from some other cause, these sounds are more perfectly heard in these individuals than in other persons.

It must be obvious that from the nature of their defect, the persons affected with closure of the meatus, must labour under considerable difficulty in distinguishing accurately different degrees of intensity of sound; but it does not appear that in any of them, there is any want of the power to distinguish its other qualities, as timbre or pitch. The lad B. had a range of hearing, apparently as extensive as that of other persons, he having been tried in Mr Forbes' room, with a range of sounds extending from one very low in the scale to one four octaves above the middle C of the piano-forte, and was perfectly able to distinguish the pitch of different notes.

The difference in the direction of sounds, he appeared to have very little, if any, power of distinguishing; but this is not more than we should expect, for most persons can tell the direction from which sounds proceed very imperfectly indeed, when the ears are stopped. Our knowledge of the direction of sounds, in fact, depends in a great measure upon our judgment of the difference of intensity with which one or other ear is affected by them; or when one ear only is employed, by the motion of the head till the axis of the open meatus is brought exactly into the direction of the quarter from whence the sound proceeds, when it is heard with greatest intensity. But so completely devoid was the lad B. of any such faculty, that he generally referred all sounds to the direction of the vertex of the head, as the place where he appeared to feel them most intensely.

This remark with respect to the power of distinguishing the direction of sounds, leads me to consider next the history of the persons with closed meatus, in reference to hearing with one or both ears.

Even in those whose hearing is perfect, the ear exhibits great inferiority to the eye, in separating or distinguishing sensations, which affect, simultaneously, the organs of the two sides. Dr Wells, founding upon what is observed to occur in vision, imagined that if two different sounds could be heard separately, each one by a different ear, such sounds would not coalesce; but Dr John Gordon, arrived at a different conclusion, and, I believe rightly. The individuals before us, present conditions in which there is almost a total impossibility of the opposite ears being differently affected by simultaneous sounds, so much so, indeed, that the lad B. never appeared to have conceived the organs of hearing to be double, or to have distinguished one from the other. Nor, indeed, was he aware that the seat of hearing was in that part of the head, which is occupied by the internal ear; but was in the habit, when listening attentively, of placing the flat part of his hands upon the sides of his head so as to cover his imperfect ears, and of directing the top of his head towards the quarter from whence he knew or supposed the sound to proceed.

The lad B. and the other persons similarly affected, hear bodies which are sounded in the air near them (that is without contact with their head) better with the mouth open than shut; but this is the case with most other persons, and may depend upon two causes. First, that resonance, both of the air in the cavity of the mouth and of the teeth occurs; and second, that the teeth thus become more directly the conductors of sound.

Experiments clearly show that no sounds enter the tympanum by the air of the Eustachian tube, and, I need hardly say, that the gaping of the listener is more the effect of the mental act of attention, during which the muscles of the jaw are relaxed, than connected with any provision for the increase or conduction of sonorous vibrations.

Neither the lad B., nor Miss R., had from their sensations ever been led to regard the ears as the seat of hearing; and from the experiments I have performed, I should be inclined to think that other persons, if their external ears were completely stopped, would not readily form that conclusion, which they are so immediately led to make, from the varying intensity of the sensations in opposite ears which occur in the common mode of hearing.

When in a person whose ears are natural the external meatus are completely stopped, the sensations of sound appear to affect the whole head, so immediately and equally are they conducted to both ears by the hard parts. Unless, indeed, very marked sounds are made to act close to one or other ear, or unless jarring and painfully intense sounds affect the organ, they are referred indistinctly to the whole head. Our notion of the ears as the seat of hearing, or our power of localizing the impressions of sound, appears to depend upon three circumstances. 1st, Upon the varying intensity of sounds that may affect one ear by turning it in different

directions. 2d, Upon the different intensity of sounds affecting opposite ears; and 3d, upon painful sensations accompanying sound.

Such pain, however, as is felt from certain sounds, does not probably exist in the auditory nerve itself, but rather in some nerves of the tympanum, and there seems to be a final cause for the existence of these sensations in the increased tension which by reflex action they induce in the membrana tympani, and the consequent impediment they occasion to the farther or too powerful transmission of such sounds to the internal ear. I could not ascertain that such painful sensations had ever been experienced either in the lad B. or Miss R., and I am inclined to think that they do not exist in them, in consequence of the absence of the membrana tympani.

In the concluding part of this paper it is my intention to trace the malformation I have described to its origin, at an early period of foetal life, in a defect of the development of the middle and external parts of the ear.

In the meantime I beg leave to call the attention of the reader to an account of a dissection of a similar case of malformation, which Mr Toynbee has been so good as to communicate to me, since the publication of the first part of my paper, which appears to confirm the view I have taken of the nature of the malformation, and deserves particular consideration from the known skill of Mr Toynbee as a dissector, and his very extensive opportunities of becoming acquainted with the morbid anatomy of the ear.

ARTICLE II.—*Description of a Congenital Malformation in the Ears of a Child.* By JOSEPH TOYNBEE, F.R.S., Senior Surgeon to the St George's and St James' Dispensary. Read before the Pathological Society of London, January 18, 1847.

THE specimen which forms the subject of the present communication was brought before the Pathological Society, by Dr Lloyd, physician to the Aldersgate Dispensary, and at his request I conducted the dissection.

The subject of dissection, was a child born at the seventh month of pregnancy, who died immediately after its birth from hemorrhage taking place from the umbilical cord, which was severed close to the umbilicus by an ignorant midwife.

The external ear consists of a fold of integuments having much the same shape and size as the natural lobe, but it is directed forwards, so that the concave surface which usually looks outwards, is directly applied to the surface of the head, and conceals the tragus which is rather smaller than natural. There are two orifices on the upper part of the anterior surface of this appendage and one at its posterior part; these are the openings of mucous follicles.

The meatus externally is entirely absent, a slight depression in the integuments is the only indication of its usual position. Upon dissection no *membrana tympani* was discovered, but in its place is a flat surface of bone which presents two fissures, one very narrow and having a direction forwards, and a second three or four lines in length, and from half to three quarters of a line in breadth, which commences at the anterior and inferior part of the other fissure, and has a direction downwards and slightly backwards. This fissure is covered by a membrane. The whole of the auditory ring is absent, so that the mastoid and squamous portions of the temporal bone are only parted by these fissures, the lower of which represents the Glasserian fissure, and the external auditory meatus united into one; and as Professor Allen Thomson has observed in his valuable paper on this subject for the *Edinburgh Monthly Journal*, the whole of the *fossa parotidea* is absent.¹

The membrane by which the fissure is covered appears to be the analogue of the *membrana tympani*. The zygomatic process of the temporal bone is represented by a small osseous layer developed in the middle of a ligament which extends from the external part of the squamous portion to the orbit; the malar bone is wholly deficient, the external part of the orbital circle being formed by a ligament connecting the superior maxillary and frontal bones.

Upon removing the membrane covering the fissure already described, a cavity was observed lined by mucous membrane; this is evidently the cavity of the tympanum, but very much smaller than natural, so as to appear more like a fissure in the substance of the bone. It measures two lines in its vertical diameter, two lines and a half from above downwards, and about half a line from without inwards. This cavity contains two bones, which are the analogues of the malleus and the stapes. The former consists of a narrow process directed upwards, and a globular body below, from which a process is directed inwards, but it has no connection with the stapes, to which it is superior in its position. The stapes in place of its two crura has a process about three quarters of a line in length, flattened above and below; to the inner extremity the base is attached, which is firmly fixed in the fenestra ovalis; the outer extremity is slightly attenuated, and does not present any surface for articulation. Above the stapes, and having a direction from above downwards and backwards, is the *portio dura* nerve, which is not surrounded by bone,² but is in contact with the mucous membrane

¹ An examination of the adult skull will show how an absence of the external auditory meatus will produce the relations here described.

² In several dissections of adult ears, and the specimens of which are in my collection, I have found the external canal for the *portio dura* nerve incomplete. In such cases it is apparent how inflammation of the mucous membrane of the tympanum induces paralysis of the facial nerve, a result which I have more than once observed.

of the tympanum. The tensor tympani muscle is in a natural state ; as is also the Eustachian tube which opens into the anterior part of the tympanic cavity. The stapedius muscle is absent.

The auditory nerve, the cochlea, vestibule, and semicircular canals appear to be healthy in every respect.

ARTICLE III.—*Remarks on Rheumatism and Chorea.—Their Relation and Treatment.* By JAMES BEGBIE, M.D., F.R.S.E., Fellow of the Royal College of Physicians of Edinburgh.

(Read before the Medico-Chirurgical Society, February 17, 1847.)

THE association and alternation of rheumatism and chorea have been noticed of late by several authors, but comparatively little attention had been paid to the subject, till the combination of the spasmodic disease with inflammation of the pericardium, more recently attracted observation. Dr Bright appears to have had his attention, at an early period, called to the connexion of the two diseases.¹ Dr Copland, in 1821, related a case in which the complication existed, and where effusion both into the pericardium and spinal theca, was discovered on dissection.² Dr Prichard subsequently recorded several cases in illustration of the connexion;³ and Dr Scudamore, in his work on rheumatism published in 1827, mentions phthisis and chorea among the consequences of acute rheumatism which he had known to ensue.⁴ Hitherto the occurrence of chorea in conjunction with rheumatism, had been referred to extension or metastasis of the rheumatic inflammation to the membranes of the spinal cord ; but its association, with pericarditis, has led to other views in explanation of the connexion, which will appear in the sequel ; meantime, I beg to offer to the consideration of the Society the following histories, in illustration of a point, which has not as yet, so far as I know, been adverted to by any writer, I mean the occurrence of the two diseases, conjointly or severally, in different individuals of the same family, and their probable dependance on the same morbid diathesis. The histories are three in number, and have occurred to me in practice within a few years, so as to lead to the impression, more especially when viewed in connexion with the other cases referred to, that the coincidence of the two diseases is by no means rare, certainly not so rare as the language of an able writer and experienced observer, would induce us to believe. “Judging from my own experience alone

¹ Medico Chirurg. Transactions, vol. xxii. p. 7. See also Bright's Medical Reports, vol. ii. p. 479-493.

² London Medical Repository, vol. xv. p. 23.

³ London Medical Repository, vol. xxi. p. 1.

⁴ Scudamore on Rheumatism, p. 32.

(says Dr Watson), I should not say that the disease (chorea) was often associated with acute rheumatism. Dr Copland and Dr Bright have both, however, noted that connexion, and therefore I cannot doubt that it does sometimes exist."¹

I. A hard-working artisan, aged 30, of dark complexion, and well-developed muscular frame, after exposure to cold and damp, was laid on his bed on the 14th of January, 1845, with symptoms which brought to mind, with painful foreboding, a severe attack of rheumatic fever, of three months duration, which he had suffered six years before. I saw him, for the first time, on the morning of the 19th, the sixth day of his illness, and at that time, with the exception of some household aperient, he had used no remedies. He was enduring, with much patience, considerable pain in the larger joints of the upper and lower extremities, and still more severe in the fingers and toes, accompanied with tenderness, redness, and swelling. His fever was smart, the pulse full and throbbing, in frequency 108; the sounds of the heart normal; the tongue was white, the skin was moist with the acid perspiration exhaling its peculiar odour, and the urine loaded with the lateritious deposit so common to his disease.² Having no fear of producing metastasis (as it is called) a dread of which still deters many from the use of the lancet, and other antiphlogistic remedies, in the treatment of acute rheumatism, the patient was bled from the arm, and xxx abstracted; 10 grains of Dover's powder with 5 grains of calomel, ordered to be taken immediately, the same dose to be repeated in the evening, and to be followed in the morning of the next day, by a brisk purgative of senna and salts. The antiphlogistic regimen to be strictly observed. The morning of the 20th brought considerable relief, he had slept well, the pain, especially of the larger joints, was subdued; the pulse had fallen to 96, and was soft, the sounds of the heart natural; the blood taken was very buffy, the serum very scanty, the coagulum unusually soft, and the fibrinous separation full half an inch in thickness, in an ordinary sized tea-cup. The bowels had not responded to the cathartic draught—let him have a full dose of castor oil, and after its operation a pill containing two grains of calomel with half a grain of opium, to be repeated every sixth hour. On the 21st he continued easier—pain chiefly confined to the wrists and fingers; pulse 100 full and strong; bowels freely moved by the castor oil. Continue the calomel and opium. On the 22d there was considerable pain and swelling in the fingers, wrists and shoulders, pulse 100 full and strong, no mercurial fœtor. He was again bled to xxx . The 23d found him much relieved, the

¹ Lectures on the Principles and Practice of Physic, vol. i. p. 644.

² The application of heat rendered the urine clear and transparent by the solution of the lithate of Ammonia, but produced no further change.

pain and swelling gone from every joint, pulse 80 and soft; gums gently tender and swollen. Auscultation elicited no sounds but those of health. The blood drawn yesterday, still buffy and cupped, the urine scanty, but without sediment, and unaltered on the application of heat. Bowels open—let the calomel and opium be intermitted, and 10 grains of nitre given three times a day. On the 24th he continued to improve, pulse 80 and soft, urine copious, continue the nitrate of potash. On the 25th the pain and swelling returned to the large toes, and the pulse rose to 96 with increase of strength—the action of the heart normal. Resume the calomel and opium night and morning, and continue the use of the nitre. On the 27th of January, the ninth day of treatment, the patient was sitting up, free from complaint, and expressed himself as quite well, but deficient in strength, and anxious for food, the pulse was 76, and all the functions natural. Suspend medicine, and let him have white fish and bread for dinner. On the 30th he continued well. I ceased my attendance, and he speedily returned to the workshop.

In the room adjoining that in which lay this rheumatic patient, there sat on the first day of my attendance, his eldest child, a delicate little girl, of five years of age, of fair complexion, and strumous appearance, with loaded tongue, and tumid belly, exhibiting all the gesticulations and jactitations of confirmed chorea; the disease was of four weeks' duration, and the cause of it was ascribed to a fright she had shortly before sustained from some mischievous boy at school. The treatment commenced with unloading the bowels, by means of an active dose of scammony and calomel, while the functions of the intestinal canal were regulated by appropriate diet and gentle aperients throughout her illness. The administration of the arsenical solution was begun on the second day, in doses of five drops, morning and evening, and steadily persevered in till the swollen eyelid and silvery whiteness of the tongue indicated its peculiar action on the system, attended by the marked remission of the choreal symptoms, which I have never failed to observe as the result of its operation. The child improved in looks, in health and strength; the involuntary contractions of the muscles subsided, and on the eleventh day from the commencement of treatment, simultaneously with her father, she was restored to health, which she has enjoyed uninterruptedly ever since.

At present I would only remark the occurrence for the second time of acute rheumatism in the father, and the coincidence of chorea in the child. The mother of this girl was a healthy woman, about to be confined of her third child. She had never been affected with chorea or rheumatism.

II. Early in the winter of 1840, I commenced the first of a series of attendances, destined to partake of a more than usually painful character in the family of a widow lady, the mother of nine children,

all of whom had at that time been spared to her in life, though not possessed of strong constitution, or blessed with vigorous health. They ranged from 7 to 21 years of age, exhibiting the features of the strumous habit, and inheriting a strong predisposition to tubercular disease, phthisis having been very fatal in their mother's family. The father had died at the age of 47, of an affection of the brain, accompanied with vomiting and convulsions. He inherited a predisposition to apoplexy. The mother had been subject to rheumatic and neuralgic pains, but had never suffered from acute rheumatism.

My first patient was a girl (M), aged 12 years and 6 months, of pale and delicate appearance, with fair complexion, and light blue eyes, manifesting little appearance of approaching puberty. She had been labouring under the choreal jactitations for nearly two months, and their character had lately become much aggravated. The accession of the complaint was imputed to a strong impression made on her mind some time previously, by having witnessed during successive days the grimaces and gesticulations of a boy, who passed her in the street, while labouring under the disease. There was not much appearance of disordered health; the bowels were somewhat torpid, and the tongue loaded. There was no headache or disturbance of the brain; but the muscles of the face and of the right arm and leg were thrown by involuntary contraction into all the distortions which characterize the disease, and which in the presence of a stranger, were much heightened by the inordinate sensitiveness which usually accompanies it. The practice was that which I have invariably adopted in the treatment of this affection. The bowels were freely moved by a purgative draught, and on the second day the exhibition of the arsenical solution was commenced, and continued in doses of 5 drops an hour after meals, adding one drop every third day, till the peculiar whiteness of the tongue, or swollen eyelids indicated its specific action on the system. The diet was of farinaceous vegetables, with an allowance of milk, and the bowels were regulated by one of the aloetic pills, taken every night or alternate nights, as required. Purging was avoided. Under these means the disease subsided in the course of three weeks. There was neither nausea nor vomiting, nor irritation of the bowels, produced by the mineral. The annoying symptoms relaxed and disappeared, and the patient returned to pursue her education, which had been interrupted for nearly three months.

In the course of a year and a half, a younger sister (A) who had then reached the same age as my first patient, at the period of the illness just noted, was placed under my care labouring under the same affection, and precisely in the same form. She had the advantage of her sister in general appearance, being somewhat stouter and taller for her age, and manifesting more the appearances of approaching womanhood, but the catamenia had not occurred. The complexion, the hair and the eyes, resembled those of her

sister; there was the same disorder of the nervous system, the same twisting and twitching of the muscles of the face, the same contortions of the arm, and the same dragging and shuffling of the leg. No cause could be assigned for the complaint; there was neither pain nor uneasiness present, and no other appearance of deranged health beyond disordered stomach and bowels. The treatment was in all respects a repetition of the practice pursued in the sister's case, but it was longer protracted. The arsenic produced no unpleasant effects, and simultaneously with its physiological action came the relief and ultimate removal of the conflict between the will and the opposing muscular powers.

In January 1844, I was requested to visit (F) a brother of these young ladies, a thin emaciated lad of 18, but having more the appearance of 15 years of age. He was suffering from rheumatic fever in the sub-acute form. The ankles and knees were chiefly affected, being somewhat tender and puffy, the skin was warm and dry, the pulse quick, the tongue foul, the breathing natural, and the sounds and beat of the heart normal. It was not a case for active treatment. Confinement to bed, an active purge and the quieting effects of ipecacuan and opium appeared at most to be required, but within a week symptoms presented themselves which demanded more vigorous measures. A restless night, with increase of pain and fever was followed in the morning with anguish in the precordial region, uneasy breathing, distress of countenance and tenderness on pressure in the epigastric region. Auscultation discovered a friction sound, percussion, increase of dulness of limited extent, the general and physical signs were those of pericarditis. Repeated leeching and calomel and opium now took the place of less decided remedies, and in three days the precordial pain, the difficult breathing, and the to and fro sound of the heart abated and disappeared, the general rheumatic pains subsided, and in three weeks the patient, though weak and exhausted, was enabled to leave his room.

During the convalescence of this youth, my attention was called to the state of health of my first choreal patient, and also to that of an elder sister, then in her 25th year, both exhibiting the well marked signs of tubercular disease of the lungs; the former in a state of condensation, the latter in the progress of softening and suppuration. To this sad malady we have seen that they were predisposed. The disorder made rapid progress, and, in little less than two months, cut short their existence in one and the same day, the former by pulmonary hemorrhage, the other by exhausting hectic.

Symptoms of the same disease speedily began to manifest themselves in the rheumatic patient (F), and he was advised, towards the close of the ensuing autumn, to seek the benefit of a southern climate, in the hope of arresting its progress. The expectations formed were destined to be disappointed; he returned the following

summer with tubercular disease in the abdomen, in addition to his chest complaints, and spent at home a year of wearisome days and nights, harassed with cough and abdominal irritation; and enfeebled in mind as well as in body, the victim of the most painful delusions, he followed his sisters to the grave.

Some months before he sank, my second chorea patient (A), now in her 15th year, but without the appearance of the catamenia, was seized with pain, swelling, and redness of the left ankle joint, accompanied with slight fever; the affection shifted to the knee of the same side, passed over to the opposite side, and migrated during several days from one joint to another; there was not much constitutional disturbance, the pulse was little accelerated, the sounds of the heart were healthy, the tongue was foul, the urine scanty and loaded, and the bowels deranged. It was not the acute fibrous rheumatism of the hardy workman first described; it was not the sub-acute form which affected her brother; its migratory character, and its glistening redness and puffiness around the joints it occupied, gave more the features of the synovial species, and indicated a somewhat different treatment. This consisted of a full purging dose of calomel on two successive nights, followed by castor oil in the morning, under which copious bilious stools were obtained, with apparent relief to the symptoms. On the third day the wine of colchicum (which appears to be most useful in this variety), was administered in repeated doses, and continued for several days, but without any marked benefit; it began to irritate the bowels, and was discontinued; local bleeding and opium were had recourse to, with evident mitigation of pain, redness, and swelling. The disease, however, was not subdued; the pulse was still more frequent than natural, and the pain and redness returned, from time to time, to the ankle first affected, with increased severity. The habit and constitution of the patient made me unwilling to employ mercury farther; but symptoms developed themselves during the third week of the illness, which forbade its being longer withheld. The sounds and beats of the heart had, till this time, been normal and rhythmical, and there was no precordial uneasiness to lead to the suspicion that the heart had partaken of the rheumatic inflammation. Now, however, it was apparent that mischief had commenced; the affection of the joints had in a great measure subsided, when pain in the region of the heart, dyspnoea and increase of fever supervened; there was a loud systolic endocardial murmur, and slight excess of impulse. Repeated local bleeding by cupping and leeches, and the exhibition of calomel and opium, at short intervals, were now had recourse to, and followed after the gums became gently affected, by repeated blisters to the region of the heart. These means were beneficial; the more urgent symptoms subsided, the patient by degrees regained her strength, the rheumatic pains entirely left the limbs, but the

endocardial murmur now diminished in loudness, and the impulse now increased in force, tell that the cure is incomplete, and that sooner or later the injured valves will be followed by other signs of irreparable organic disease.

During convalescence from this attack, the patient again experienced a return of her choreal symptoms. They were less severe in character, but more obstinate in removal, and less amenable to treatment. Arsenic was confided in, however, and after persistent use for many weeks, prevailed. Its employment was once and again interrupted in consequence of its irritating effects on the bowels, these however were of short duration, and readily overcome, and their occurrence was the marked occasion of alleviation of the nervous symptoms.

In this family history I would only remark at present, the occurrence of two cases of rheumatism and two of chorea; one of the subjects having suffered once from the former, and twice from the latter within a short period, but the attack of the one affection apparently unconnected with the other.

III. I lately prescribed for a boy aged 13, affected with chorea supervening on a second attack of acute rheumatism, but not complicated with heart disease, so far as the pure sounds and normal action indicated health. The affection was of mild character, and readily yielded to the remedies prescribed—gentle aperients, and the arsenical solution. The latter I have reason to believe was taken irregularly; the boy discontinued his attendance, but I have ascertained that he is now quite well. The elder brother had been the subject of repeated attacks of rheumatic fever, the last of which terminated in endocarditis, from which resulted thickening and puckering of the aortic valves followed by hypertrophy and dilatation of the left ventricle, as ascertained by post-mortem examination. This boy also laboured under chorea immediately supervening on his last rheumatic attack, and continuing for many months previous to his death, at times in a very severe form, but as he was not under my care till shortly before the fatal event occurred, when the tumultuous and labouring action of the heart was the principal cause of his suffering, I did not suggest the use of means, the employment of which was only destined to meet with disappointment. I must not forget to mention, that while there was a small quantity of serous effusion in the pericardium, there were no traces of previously existing pericarditis, no thickening of either surface, no white spots or bands of adhesion. A sister of these boys at the age of 17, had been affected with chorea in a mild form, but had never suffered from rheumatism. The mother of the family had been the subject of acute rheumatism in a severe form, shortly after her first delivery. The father, who describes himself as a nervous man, and partakes deeply of the melancholic temperament, had never suffered from either affection. In this family we have three cases of acute rheumatism and three of

chorea, each of the diseases being distinct in one instance, and complicated with the other in the remaining two.

Since the foregoing histories were read to the Society, Dr William Cumming has kindly favoured me with the following additional evidence.

IV. In a family consisting of ten members, four have suffered at different periods of their lives from rheumatism. One of these at the age of 12 had a very severe attack, was seized in the month of October last, after a journey by railway of two days duration, with violent delirium and other symptoms, which directed the attention of his medical attendants to the head as the part affected. The treatment adopted, on the supposition that the head was the organ suffering, was apparently quite successful, and the patient seemed to be progressing towards a favourable recovery; when, after an opiate injection to remove retention of urine, he was again suddenly seized with the same untoward symptoms as formerly. On his first seizure, attention had been given to the heart's sounds, but nothing was perceived beyond a violent and impetuous action, nothing to indicate disease, either of the lining or investing membrane. On the relapse, however, there were heard both a very distinct systolic murmur, and a to and fro sound, the latter limited to a small space near the apex of the heart. Between the first day of seizure, and the relapse of the symptoms, no examination of the heart was made. He was cupped over the region of the heart, nauseating medicines exhibited, and as there was some difference of opinion as to the cause of the symptoms, the treatment included also such means as tend to relieve the head by derivation, such as a blister behind the head, purgatives, &c. The remedial means were quite successful, the endocardial murmur ceased entirely after a time, but the exocardial (though very slight) persisted for at least three months, the period during which the patient remained under Dr C.'s observation in Edinburgh. Another member of the same family has laboured for ten years under an interesting neuralgic affection. Another who has had neither neuralgia nor rheumatism, had two distinct attacks of chorea, the one of four months duration when she was 6 years of age, the other of two months when she was 8, both supposed to have been caused by the irritation resulting from the protrusion of the permanent teeth. Does not the connexion in the same family of these two diseases, when viewed along with those recorded, favour the opinion that the same diathesis which, under certain circumstances, leads to the production of the one, in different conditions tends to the development of the other?

The cases hitherto related by authors with the view of establishing a connexion between rheumatism and chorea, have been individual examples, in which the two diseases have been concurrent, or where the one has supervened on the other; and the doctrine

of metastasis has been generally received as the explanation of this association. Dr Copland remarks, that the association of chorea with rheumatism has been observed on several occasions by him, and that in nearly all, there has been a marked disposition of the rheumatic affection to recede from the joints, or extremities, and attack the internal fibro-serous membranes, as those of the cerebro-spinal axis, and the pericardium.¹ Dr Bright, however, in the interesting paper already referred to, has detailed several cases of chorea supervening on rheumatism, and accompanying affections of the pericardium, in which he conceives the symptoms to depend on irritation, communicated to the system from lesions within the chest; and thinks there is reason to believe that the phrenic nerve is the more immediate means of communicating the irritation to the cord; and he considers, moreover, that the great and important point, is the fact, that the most violent attacks of spasmodic disease will occasionally owe their existence to inflammation of that portion of the pleura and the pericardium, where inflammation is often with difficulty detected, that part more particularly, where the phrenic nerve in its course, or its distribution, is to be found; and he does not at all incline to the belief, that inflammation in or about the spine, is necessary to produce chorea. "Though, I doubt not (he says), that in some cases the coverings of the cerebro-spinal mass may be, and are implicated, yet I believe that the much more frequent cause of chorea, in conjunction with rheumatism, is the inflammation of the pericardium, and that the irritation is communicated thence, probably to the spine, just as the irritation of other parts, as of the bowels, the gums, or the uterus, is communicated, and produces the same diseases."² Dr Babington, in a valuable paper on chorea,³ speaks of rheumatism as a cause of the disease, when it affects the heart or pericardium, through the irritation of the plexus and ganglia, which so entirely surround that organ, and the origin of its great vessels. After detailing his second case, however, he considers it doubtful whether the chorea was owing to some rheumatic inflammation of the membranes of the cord, or to that of the pericardium; and remarks in regard to his third case, that we are left in doubt, whether to consider it as the result of direct rheumatic inflammation of the membranes of the spine, or as depending on irritation of the ganglionic system. The latter, he is persuaded, is the more frequent occurrence. Dr George Burrows, in his recent publication, has collected a number of cases of spasmodic diseases, connected with inflammation of the heart, and arising from irritation of its nerves; and he fully coincides with the general principle of the explanation which Dr Bright has offered of the pathology of these affections; but referring subse-

¹ Dictionary of Practical Medicine, v. i. p. 335.

² Med. Chir. Transactions, vol. xxii. p. 15.

³ Guy's Hospital Reports, vol. vi. p. 418.

quently to Dr Hope's explanation of the risus sardonicus, in severe cases of pericarditis, he observes, that although the spinal irritation may in some cases be excited through the phrenic nerves, the same amount and kind of irritation may be equally conveyed through the pneumogastric nerves.¹ Dr Watson, in noticing Dr Bright's cases, says, that he does not perceive any obvious or direct connexion between the cardiac disorder and the nervous disorder; and he offers two conjectures which occur to him, and which appear modifications of the two views already adverted to, namely, that in the cases in question, some morbid condition of the membranes of the spinal canal may have arisen simultaneously with the inflammation of the pericardium, or that the cardiac disease may operate by some ill-understood influence upon afferent nerves of the cord, as an eccentric cause of the irregular movements.²

The cases of chorea associated with rheumatism, which have now been brought before the Society, cannot consistently be explained on any of these views. There was no evidence of the extension of the rheumatic inflammation to the membranes of the spine, and no indications in any case of inflammation of the pericardium or pleura, so as to corroborate Dr Bright's view of the supposed irritation of the phrenic nerve. In one case the spasmodic disease supervened upon a second attack of rheumatism, where there was no evidence of any form of cardiac complication; and in the only example of rheumatic pericarditis noted, though occurring in a family where there existed a strong predisposition to the spasmodic affection, no manifestation of it occurred; but phthisis and disordered mind, which have been noticed as among the results of rheumatic fever, were the chief complications. Two of the remaining cases of chorea supervened on inflammatory affections of the heart, but like other instances on record, the inflammation was not of the external covering, but of the internal lining membrane of that organ, and thus do not admit of the explanation offered of the pathology of these affections.

The first case of chorea now related, as an isolated example, may be considered as a mere coincidence with rheumatism in the father, but, taken in connection with his well marked predisposition to this affection, and in conjunction with the subsequent cases, and keeping also in view the circumstance that the patient was the first-born child, and that the disease had manifested itself at the early age of five years, I apprehend the history is of considerable value in establishing a connection between the two diseases through the same diathesis. In the second family history it deserves remark, that two examples of chorea had occurred before there was ground of suspicion that such a diathesis existed. By and by, however, first one case of rheumatism and then another succeeds, and the latter is followed by a renewal of the chorea,

¹ Burrows on Disorder of the Cerebral Circulation, Sect. vii.

² Lectures on the Practice of Physic, vol. i. p. 644.

establishing very plainly an intimate connection between the two diseases. The third history is still more conclusive; the mother of the family had suffered from acute rheumatism shortly after the birth of her first child; that child at the age of 17 was the subject of chorea, but never was affected with rheumatism; her brother next in age, while yet a boy, had repeated attacks of rheumatism, the last of which was complicated with endocarditis, and followed by chorea of protracted duration; under which combination he died; while a younger brother, who twice suffered from rheumatism, but not complicated with cardiac disease, was subsequently the subject of chorea in a mild and manageable form.

Keeping these facts in view, and calling to recollection the several cases which have been recorded elsewhere, with the purpose of illustrating the connexion of the two diseases, I cannot help coming to the conclusion that the simple and true view of their relation is to be found in the morbid condition of the blood, which is admitted to exist in the rheumatic constitution; and this explanation will apply equally to chorea occurring in individuals or families inheriting the rheumatic diathesis, to chorea occurring in connection with rheumatism, but without the cardiac complication, and to chorea associated with pericarditis, or endocarditis, or both; the inflammatory affections of the fibrous tissues, as well as the spasmodic affection of the muscles or tendons, originating in the same specific disorder of the circulating fluids. The labours of the microscope and the progress of organic chemistry, may ere long reveal to us in what this disorder consists, whether in a change of the physical or chemical relations of the blood, or in the formation of a new substance; and the discoverer may be able to demonstrate, what is now only conjecture, that these changes are produced during the process of assimilation, or accomplished in the blood-vessels themselves.

Those remarkable cerebral affections, the wild delirium, and violent mania, the coma, and fatuity, which not unfrequently occur in the course of rheumatic fever, or follow in its train, and which have usually manifested themselves along with the cardiac complication, causing doubt and perplexity in the mind of the attendant as to the real organ affected and the true nature of the disease, admit, I apprehend, of the same explanation; the altered or perhaps poisoned nature of the blood, circulating through the brain, and not as has been supposed by Dr Watson, the embarrassment of the cerebral circulation from obstruction of its central organ; for in some instances violent delirium has preceded the earliest symptoms of heart affection, and death in other cases has ensued on rheumatic attacks, accompanied with evidence of cardiac disease; but where the state of the brain was the chief cause of apprehension, and dissection has disclosed nothing more than "a row of small slender bead-like warts on the mitral valve."¹ Surely in cases such as

¹ Medical Gazette, vol. xvi. p. 93.

these it would be well to look to the altered condition of the blood, as the common cause of the rheumatic affection of the joints, the inflammation of the membranes of the heart, and the disorder of the nervous centres.

I have lately witnessed the occurrence of sudden and violent maniacal excitement, in several instances, under circumstances somewhat analogous. Two of the cases occurred during the secondary fever of small-pox, another during the progress of purpura, and a fourth subsequent to an attack of jaundice, accompanied with well marked renal disorder. The subjects in all these cases inherited a family predisposition to mania. Dr Frederick Bird, recently related several cases of puerperal mania, in which the disease appeared to have its origin in antecedent rheumatism, but I can only refer to the discussion on this subject in the Westminster Medical Society,¹ and to the review of Dr Burrows' work on Disorders of the Cerebral Circulation, in a late number of the Medical Gazette, in which the writer distinctly adopts the humoral pathology in explanation of the cases recorded by that author, of affections of the brain and spinal cord, depending on acute diseases of the heart.² I shall not detain the Society longer on this point, but hasten to a few closing remarks on the treatment of the two affections.

"Acute rheumatism (says Dr Latham) has experienced strange things at the hands of medical men. No disease has been treated by such various and opposite methods."³ In illustration of this I would contrast an instructive passage of the late Dr Hope's elaborate work on Diseases of the Heart,⁴ relative to the duration and treatment of rheumatism, with the opinions still entertained by other writers on these subjects. According to the latter, "the duration of a well marked case of acute rheumatism, is seldom less than six weeks, often, particularly in winter, it is protracted considerably longer; or if it abate sooner, a relapse is extremely probable; the disease cannot probably be much shortened in its duration by antiphlogistic remedies, and if it were so shortened in external parts, we have good reason to think that the risk of affection of the heart would be greatly increased; and no reliance whatever can be placed on the specific power of mercury over this disease."⁵ With all deference to the able writer and accomplished physician, whose observation is thus expressed, I cannot help considering his opinions as not destitute of danger. The risk of extension of the rheumatic inflammation to the internal fibrous tissues, is increased the longer we delay employing antiphlogistic means for its removal from the external parts, and of these means, unquestionably blood-letting, followed by calomel and

¹ Lancet, vol. ii. 1845, p. 518.

² Medical Gazette, 1845-46, vol. ii. p. 1093.

³ Latham, on Diseases of the Heart, vol. i. p. 181.

⁴ Page 178 and subsequent note.

⁵ Alison's Outlines of Pathology and Practice of Physic, p. 362.

opium are the chief. Many, I believe, can attest the efficacy of the treatment adopted successfully in the first case detailed in these remarks, and many have had cause to regret the timid and cautious practice pursued in the two cases which follow. Bloodletting, free and early, with the assistance of calomel and opium, placed the hardy workman in a few days in a state of safety. The less decided practice in the other two issued in the extension of the disease to the heart, to overcome which, and to save life, bloodletting and mercury, were at length resorted to. Such cases are of every-day occurrence. Dr Hope has brought the evidence of numbers in favour of the practice of blood-letting, along with calomel and opium; and his experience of the duration of rheumatism, out of 200 cases, is that the pain and swelling are greatly abated, if not almost gone within two days, and almost always within four, and that if the patient is not well in a week, it is a case of exception. He farther states, in recommendation of the plan, that it is rare to see inflammation of the heart supervene if the treatment is early commenced, that one case in twelve would be the maximum. This contrasts very remarkably, with an admission made in a previous sentence by the same writer, "that acute rheumatism had preceded in about three-fourths of the worst cases of valvular disease and adhesion of the pericardium, which have occurred amongst upwards of 10,000 hospital patients which he had treated during the last four-and-a-half years."

Rheumatism, however, cannot be regarded as an active inflammation and treated accordingly. It must rather be considered as a disease dependent on a specific morbid condition of the blood, exciting inflammatory action, particularly in the fibrous tissues; and our remedies ought to be applied with the view of lessening the amount of the circulating fluids, and altering their constitution. For this purpose moderate bloodletting and calomel combined with opium appear to be the most appropriate treatment, and I have repeatedly observed, particularly in cases which did not call for immediate loss of blood, that after persevering in the use of mercury for some days apparently without benefit, the abstraction of such a quantity as sensibly affected the pulse, has been attended with immediate and permanent benefit. I have never seen the rheumatic inflammation of the joints translated to the heart in consequence of bloodletting, and cannot but fear that the prevalent notions regarding metastasis and its connexion with this practice, have led to serious errors in the treatment of the disease. If we bear in mind that a third part or more of all those affected with acute rheumatism also suffer inflammation of the heart, and that a large number also labour under inflammation of the pleura and lungs, and not a few under alarming disorder of the brain, we shall be desirous to employ all the means in our power to overcome as quickly as possible that condition of the blood which, so long as it remains, is productive of such serious consequences to vital organs.

I have often been disappointed in colchicum, and doubt its efficacy in the true fibrous rheumatism, though I have been more sensible of its therapeutic effects in the synovial variety, that form which is known under the name of rheumatic gout, and in which, purging with full doses of calomel, aided by other purgatives, so as to procure copious bilious stools, is also found useful, a plan of treatment introduced by Dr Chambers of London, who was also the first to point out the distinction between the fibrous and the synovial rheumatism, and the application of varying means of treatment according to the texture implicated, observations which have been well illustrated by Dr F. Hawkins, in the Gulstonian lectures for 1826. The antimonial solution, at one period, I saw extensively employed, by my distinguished preceptor, Dr Abercrombie, and with marked benefit; but he was in the habit of employing bloodletting early in the disease, and of combining opium with antimony on all occasions; and admitting the powerful agency of this remedy when administered alone in acute rheumatism, I am inclined to ascribe the benefit obtained, as mainly due to it.

In the treatment of chorea, I can only speak of the efficacy of one agent, having never had occasion to test the powers and properties of any other; and it deserves remark, that this remedy, so available in chorea, is scarcely less so in chronic rheumatism. Arsenic is a most valuable and powerful remedy in these, as in many other diseases, and it is much to be regretted that so many are deterred from employing it in consequence of the sickness and griping which it is apt to produce, or from a fear of its poisonous effects on the constitution. Dr Babington, in the interesting paper to which reference has already been made, in speaking of the comparative merits of different remedies, has noticed arsenic as "the most powerful of all;" but he admits that he has been dissuaded from employing it from these considerations; other authors and practitioners have been influenced by the same views, so that its real merits are but imperfectly ascertained. Dr Hughes, in a recent digest of a hundred cases of chorea, in which the efficacy of various modes of treatment is tried, in speaking of arsenic, considers it as slightly inferior to the other mineral tonics; but he only employed it in seven cases, two of which it cured, and with five it failed, or disagreed. In the experience of now nearly thirty years, and in a large number of cases, I have never known it fail. It has certainly in several instances disagreed, but I have not abandoned it on that account; its use has been suspended for a few days, or even a week, and resumed, perhaps, to be suspended again; but I have invariably found that the choreal "jactitations" have become more and more modified after every such intermission, till at last the disease has yielded entirely, and no permanent injury to the constitution has ever resulted from the employment of the remedy. In almost all cases the medicine has been withdrawn for a time, as soon as evidence

of its physiological action on the system was observable, and before it could be said to have disagreed. The earliest manifestation of these effects are itching and swelling of the eyelids, redness of the conjunctiva, nausea, and uneasiness at the pit of the stomach, and particularly a peculiar white silvery appearance of the tongue, seldom accompanied with tenderness. These have invariably diminished and disappeared in the course of a few days after the mineral has been withdrawn, and no other unpleasant consequences have resulted. In the last case, which I have shortly detailed to the Society, it was remarked that the arsenic was once and again suspended; on the first occasion the patient passed for a time from under my observation to the care of Mr Aikman, an intelligent practitioner in East Lothian, who writes in regard to her, that, "shortly after her arrival, she resumed the use of the arsenic, and continued it for about three weeks, when we were obliged to discontinue its use on the appearance of constitutional symptoms. When these subsided she again resumed the arsenic, and went on with it regularly until we were again interrupted by the constitutional disturbance; and when it passed away, the improvement was so decided, and, up to the time of her leaving the country, so permanent, that there was no necessity for again having recourse to it." He adds, "In connexion with this case, it may be interesting to you to know that, in another instance in which I have used the arsenic, the case was as complete and permanent, though, after persevering in its use for two months, not the slightest constitutional disturbance was excited."

I may take this opportunity of stating that, after extensive trials of the arsenical solutions in periodic affections, in psoriasis, and other scaly affections of the skin, in epilepsy, and other convulsive diseases, and particularly in chronic rheumatism and chorea, I have been equally gratified by its efficacy as a powerful therapeutic agent, as by its freedom, under judicious management, from all poisonous or injurious consequences.¹

ARTICLE IV.—*On Inflammation and Ulceration of the Uterine Neck in Females Advanced in Life.* By HENRY BENNET, M.D., Obstetric Physician to the Western General Dispensary, London.

INFLAMMATION and ulceration of the uterine neck, is not confined to young and middle-aged females; it is occasionally met with in women rather advanced in life, and who have long ceased to menstruate. Nor can we feel surprised that it should be so, when we

¹ Some valuable rules for the right administration of arsenic will be found in an interesting communication from Mr Hunt, in the *Provincial Medical and Surgical Journal* for April 1846.

consider that inflammation is a morbid process, which may attack the tissues and organs of the animal economy at any period of their existence. Anatomical and physiological peculiarities may render its manifestation rare in some organs during certain periods of life, but they cannot shield them entirely from its influence. Before menstruation has set in, and after it has ceased, the uterus and its appendages are in a state of repose, of low vitality, which renders them much less liable to inflammation than during the age of sexual activity. But even at that period the uterus, and more especially the mucous membrane covering its lower segment, is occasionally the seat of inflammation; ulcerative inflammation of the cervix uteri existing years after the cessation of the catamenia, may, nevertheless, be considered a comparatively rare form of disease. When I have met with it, generally speaking, it has seemed to be the lingering remains of inflammatory disease present at the time the menses ceased. In a few cases it has appeared to have originated spontaneously, and in a few others I have known it occur as the evident result of neglected gonorrhœa.

When menstruation ceases, the uterus and ovaries gradually fall into a state of atrophy. This gradual atrophy of the uterine system exercises, I have no doubt, a most salutary influence over any local inflammation that may then exist. Under its influence, I feel certain, very many females gradually recover from unrecognized uterine inflammation, which has for many years inexplicably rendered life a burden to them. Indeed, it stands to reason, that, if women so situated, escape the dangers of cancerous degenerescence, which is always to be feared, the absence of the menstrual flux will materially change the pathological condition. The uterus being no longer subject to the periodical congestions, which render its inflammations so difficult and so tedious to subdue, the disease, no doubt, in many cases, gradually wears itself out, and thus a spontaneous cure is obtained.

In some instances, however, this desirable process only takes place partially. The gradual atrophy of the uterus now become nearly a useless organ in the economy, is still called into action; it limits the disease, diminishes the hypertrophied tissues, and partly heals the ulceration, but it has not the power to completely cure the disease. The latter still lingers on, giving rise to the greater part of the symptoms, which are usually observed in this form of inflammation. The most constant, and the most prominent symptom is generally the pain in the sacrum, or lower part of the back. The pains in the ovarian regions, and in the hypogastrium, are also occasionally complained of, but by no means so universally. The peculiar backache of uterine diseases has appeared to me, as a general rule, much more intense in women thus advanced in life, than in younger persons, although the latter may present much more extensive disease. Sometimes a leucorrhœal discharge is complained of by the patient, but not always. This fact admits of easy interpretation.

The ulceration being often small, and there being but little vaginitis, there is no great amount of muco-pus formed, and what little is secreted, is absorbed by the parietes of the vagina. As might be anticipated, the patient seldom experiences much bearing down. The inflamed cervix being more or less atrophied, as well as the uterus itself, the latter generally retains pretty nearly its normal position in the pelvis, not falling, as is the case with younger women, when the cervix is hypertrophied.

On examining digitally and instrumentally, the cervix is found small, indurated, sometimes lobular (but in that case the lobules are regular, and their divisions radiate towards the centre); the os is slightly open, and presents within its contour the velvety sensation of ulceration. The vagina is in some cases rather rosy and congested, whilst in others it presents the blanched appearance peculiar to it in advanced life. To the eye the cervix appears of a vivid red hue, and the ulcerated surface seems irritable and angry; the granulations are small; and there is no appearance of luxuriance or of fungosity about them. The cavity of the os is closed at a short distance from the external orifice. There, the physical characters of inflammatory ulceration of the cervix, at an advanced period of life, are the same, however the disease may have originated. They are often accompanied by considerable sympathetic disorder of the general health, especially when the pain in the back is very continued and very severe, which, as I have stated, is not unfrequently the case.

I have found this form of ulcerative inflammation much more intractable, and much more difficult to cure than that which is met with in younger females. It may be, that the very circumstance of the disease having withstood the influence of the changes that take place in the uterine system on the cessation of the menses, stamp it as of an intractable nature; or it may be that chronic inflammation once established in a mucous membrane of a person advanced in life, has a greater tendency to resist treatment, and to perpetuate itself, than it would have in a younger subject. Whatever the interpretation, the fact is certain. A small ulceration, the size of a fourpenny piece, resting on an atrophied cervix, will resist the most energetic treatment for months, giving rise, at the same time, to the most extreme pain in the back and sides.

The treatment which I adopt in these cases is similar to that which I follow with younger patients, and consists in repeated cauterisation with the nitrate of silver, or the acid nitrate of mercury, leeches, astringent injections, rest, and attention to the general health; and, generally speaking, averse to resorting to deep cauterisation, owing to the ulceration not resting on a larger hypertrophied basis; and when I do resort to it, I prefer the actual cautery to the Vienna paste. A very light touch of the actual cautery will produce a considerable change in the vitality of the part, and yet only be followed by a superficial eschar. I have now under my

care a woman, aged 52, who ceased to menstruate some years ago, and whom I had been treating for several months, without having succeeded in finally healing the ulcerated surface, when I resolved to use the cauterium. Within ten days after the separation of the eschar, the sore has all but healed. I shall conclude these remarks with the following cases.

CASE I.—*Slight Ulceration of the Cervix in a Person Advanced in Life, only Healing after Five months Treatment.*

April 3d, 1846.—Louisa L—, a tall, stout, robust woman, aged 54, was addressed to me at the Western Dispensary by one of my colleagues, under whose care she had been for a few days only. Menstruated at 13; she continued to be so regularly and easily until she married at 23. She subsequently had eight children, the last at the age of 43, without even suffering from any uterine symptom. Two years after her last confinement, fourteen months after weaning her child, the catamenia stopped for five months, during which time she was very poorly. They then returned, and she continued to be menstruated as usual, until about eighteen months ago. The show then became scanty, and she was seized with pains in the back and in the hypogastric and inguinal regions. In the three months afterwards the menstrual functions ceased entirely, the inguinal, hypogastric, and lumbar pains increasing; she likewise experienced slight bearing down and pain in congress. Since that epoch these symptoms gradually increased until the pain in the loins was so great, that she could scarcely sleep, or lie on either side. This it was that induced her to apply for relief. She stated that she had never had any *leucorrhœal discharge* whatever. Her health had been much impaired during the previous twelve-months. She had lost strength, and had felt ill and out of sorts, appetite bad, and bowels costive.

On examining digitally, I found the cervix rather high up, and not voluminous, but hard; the os was open, and presented the velvety sensation of ulceration. On using the speculum, the vagina appeared of a natural healthy hue; the cervix was not large, but of a vivid red colour, and presented around the os an ulceration not larger than a fourpenny piece, which slightly penetrated into the cavity of the cervix. The redness of the surrounding tissue terminated rather abruptly before it reached the vagina, and appeared the vestige of former more extensive ulceration. The ulcerated surface was acutely sensible when touched with the forceps or probe. There was but little purulent secretion. On the sore being touched with the nitrate of silver, the pain was so great as to bring on nausea, and every pain that she had suffered, became instantly felt with great intensity. Astringent injections and rest were likewise ordered, and a saline mixture prescribed.

10.—The pain of the cauterisation of the 3d persisted for the en-

tire day, although much less intense, and then subsided. Since then all her pains have been less severe, and the bearing down sensation has quite disappeared. The ulceration is less irritable, and the cauterisation is by no means so painful as on the first occasion. Cauterisation repeated.

From that time the treatment was pursued on the same principles. The ulceration was cauterised every five, eight, ten, or fifteen days, either with the nitrate of silver or the acid nitrate of mercury, according to the appearance it presented, and to the effect produced. Astringent injections of various descriptions were also used, rest enjoined, and the general health attended to. It was nearly five months, however, before the small ulceration was healed. It soon lost all irritability of surface, and the inflammation of the surrounding surface subsided, the lumbar and hypogastric pains nearly entirely disappearing, but a small portion of the primitive ulceration long remained red and abraded, secreting pus, and refusing to heal. Cauterisation was at last effected after several repeated applications of the strong liquid caustic. She had then lost nearly entirely all local pains, and her general health was very good.

In this case we find a very slight ulceration, unaccompanied by much adjoining irritation, resting on a cervix rather small than otherwise, occasioning very severe pain and great constitutional re-action. Notwithstanding these apparently favourable circumstances, it was only after the remedial measures resorted to had been persevered in for several months, it became cauterised, all inflammatory action having been at last subdued. It is impossible to fix the origin of the disease. During a long "uterine life," she only recollected having once had uterine symptoms previous to the cessation of the menses, and that was nine years previous. It is just possible that there may have been some chronic inflammatory action going on about the cervix from that time forward, until it became apparent, as described above at the change of life.

CASE II.—*Inflammation and Ulceration of the Cervix in a Person aged Sixty-one, the result of Gonorrhœa.*

July 7th, 1846, I was consulted by an old lady, Mrs M—, aged sixty-one, for a vaginal discharge, which she had had, she stated, for two years. On inquiry I ascertained that she was married early in life, had had several children, and had ceased to menstruate nine years previously. She had never laboured under any uterine disease to her knowledge, or presented any uterine symptom until two years ago, when her husband communicated to her a discharge, under which he himself laboured at the time. She retained this discharge for several months without mentioning it to her medical attendant; when she did so, he merely ordered her medicinal agents. Under the influence of this treatment, the leucorrhœa diminished, and the heat and scalding on making water, which she

had at first experienced, disappeared. The vaginal discharge, however, although less, persisted, and great and continued pain in the lower part of the back set in, gradually becoming worse. Her general health, which had previously been very good, also failed her.

On examining digitally, I found the vagina healthy, the cervix small, very hard, and divided into three small radiated lobules; the uterus appeared also very small, and perfectly moveable. The speculum showed the vagina to present the white blanched appearance which I have noticed as peculiar to age, except at its upper fifth, which was rather injected. The small lobulary cervix was of a livid red, and was ulcerated over the great part of its surface. The cavity of the os appeared quite obliterated. The tongue was white, appetite and rest bad—bowels costive.

The disease in this patient was treated as in the former one, by periodical cauterisation, astringent injections, rest, and attention to the general health; but it was only six months afterwards that I could pronounce her quite cured. The cervix was then cicatrized, and had assumed the same blanched appearance as the surrounding lesions; all pains and discharge had disappeared, and the general health was very much improved.

The marked manner in which so limited an amount of local disease will rest on the functions of digestion, and on those generally which are under the influence of the sympathetic system, is worthy of notice. It seems even more evident, if possible, in persons advanced in life, than in younger ones. In the above case the patient evidently contracted gonorrhœal inflammation of the vagina, which not being locally subdued, fastened on the mucous membrane, covering the cervix, and then gave rise to the state which I found. The disease was purely inflammatory, and consequently, although obstinate, eventually gave way to treatment. Inflammatory ulcerations, however obstinate, do not become more irritable, and extend under the influence of cauterisation, as is often the case with malignant ulcerations, such as the corroding ulcers. In this instance I never for a moment suspected the disease to be cancerous, an error into which a person not very familiar with uterine disease, might easily have fallen. Such errors, it is, that tend to propagate the idea of the frequent curability of uterine cancers.

ARTICLE V.—*Two Cases of Poisoning by the Respiration of Carbonic Acid Gas, with a Fatal Issue in one, and Recovery in the other.* By JOHN DAVIDSON, M.D.Ed., Corstorphine.

THE particulars of the two following cases appear to me not less interesting than instructive, whether we regard their practical importance, or their bearing in a medico-legal point of view.

W. H—, aged 23, and A. M—, aged 24, both gardeners in the employment of a gentleman in this neighbourhood, retired as usual to their bothy or sleeping apartment, at nine o'clock on the evening of Monday, the 16th November 1846. They had previously partaken of supper, which consisted of porridge and milk,—both were quite sober, in good health, and of robust constitution. The bothy which they occupied, was a small out-house, in a corner of the garden, having two sides formed by the garden walls; it was only nine feet square, with a sloping roof, descending so low as to be less than six feet from the floor. There were five small windows in the room, all perfectly air-tight, the largest of which, the only one that could be opened, consisted of only four small panes of glass. The door also fitted very closely. There was no regular fire-place in this small room, which was heated by means of a stove during the winter. The stove was lighted that afternoon at 4 o'clock, and no more fresh coals were added; the fire did not burn very quickly, and seldom or never required to be mended. The stove, in general, smoked for some time after a fire was made; it had been lighted only twice this season, the previous occasion being about a fortnight before.

When the men entered the room there was no smoke or smell, and they continued reading for an hour before going to bed. W. H— retired to bed about a quarter of an before A. M—, and when the latter got in he observed the door of the stove open, and nearly all the coals bright red; at this time, as far as he remembered, no smoke was issuing from the stove. W. H— lay down with his face to the wall, at the back of the bed, and fell asleep much sooner than usual. He, in general, lay on his back. A. M— lay down also with his face towards the wall, at the front of the bed, nearest the stove, and lay awake for some time, but as far as he recollected, not nearly so long as he was accustomed to do. He never could sleep, ever since he remembered, unless his face was turned to the front of the bed; he lay down, generally, with his face towards the back, but always turned himself towards the front before he fell asleep. There extended from the top of the bed along its side to the bottom, a shelf fully a foot broad, raised about three feet above that part of the bed upon which W. H— lay.

The men did not make their appearance at work next morning. They were seen in bed by a servant about 7 o'clock, a.m.; but she seems to have observed nothing to excite any suspicion. She saw them again at 9 a.m., and also at half-past 9, when, in consequence of her attempts to awake them having proved unsuccessful, suspicions of danger were excited, and I was immediately sent for. On my arrival I found the door had been locked on the inside, which I instantly ordered to be burst open. During the time this was doing, I looked through one of the small windows, and saw them lying in bed, one apparently dead, the other slightly moving one of his arms. The air in the room seemed to be tinged with a

pale bluish colour, quite different from its usual transparency. As soon as the door was broken up, I went in, but was compelled to come out again, in consequence of the powerfully suffocating odour of the air. I caused the largest window to be opened, and then I entered. W. H— was lying on his back, his face and lips perfectly pale, his eyelids closed, the eyes somewhat sunk; there was an immense quantity of frothy mucus over the lower part of the nose, mouth, and extending down to the chest; the arms were folded across the abdomen, the thumb was turned into the palm of the hand, and the fingers were closely folded over it. The posterior aspect of the neck was quite livid. The bed-clothes did not seem to have been discomposed or tossed about in the least degree. I was informed by the person who requested my professional attendance, and who first gave the alarm, that he observed the “froth working out of W. H—’s mouth.” I was, therefore, anxious to give him every assistance in my power. I removed the frothy matter from his mouth, and dashed some cold water on his face, to endeavour to rouse him, but without effect, no sign of life being perceptible. On shaking him, he felt quite cold and stiff, the skin over the anterior part of the body was quite pale, but upon the posterior part exceedingly livid; the pupils were very much dilated. The mouth was open, and filled with sanguineo-serous fluid. Perceiving from the state he was in, that it was useless to attempt any restorative measures with him, I immediately directed my attention to the other man. A. M— was lying nearly in the same position, afterwards described by him as that in which he lay down; the head and neck were slightly inclined forwards,—he was moving one of his arms gently up and down, as if endeavouring to remove something from his breast; his respiration was very noisy, short, slow, and irregular, but not stertorous; the pulse was slow, weak—scarcely perceptible, very irregular, and intermitting. His face was pale and bloodless, as were also the lips; the eyelids were closed, the pupils dilated, and the eyes quite fixed—the mouth and teeth were firmly closed. The whole surface of the body was cold and pale. The extremities, but particularly the arms, were excessively rigid. One of his hands grasped the bed-clothes, and in both the thumb was turned into the palm of the hand. He had drawn the bed-clothes partly off himself, the left hip, thigh, and part of the leg being uncovered. He gave a slight sigh when some water was thrown on his face, and was immediately afterwards carried out and placed in a sitting posture before a large fire; he was then quite insensible and comatose. The whole surface of the body, but more particularly the left thigh, continued for many hours to exhale a strong odour, similar to that of the room. The treatment may be summed up very shortly.

Application of External Heat.—The heat of the body being very much diminished, it was of great importance that it should be re-

stored as speedily as possible ; and much difficulty was experienced, both in its restoration and maintenance. The means principally used, were the following :—The immersion of as much of the body as possible in hot water, hot fomentations, hot bottles to the chest and abdomen,—frictions with warm cloths, the position of the body close to the fire, and a plentiful supply of blankets and warm coverings.

Venesection.—This was had recourse to three times, in order to relieve the congested and oppressed state of the circulating and respiratory organs. The blood flowed very slowly, was thin in consistence, and exceedingly dark in colour. After standing for twenty-four hours, it presented a very soft, flabby, and nearly black coagulum. The appearance of the blood in each of the cups varied very much : in some it was frothy, in others cupped ; in some the serum was clear, in others, sanguineous ; and in all, the proportion between the crassimentum and serum varied from one quarter to three quarters of the whole quantity. After the blood-letting, the pulse increased in frequency, regularity, and strength ; the respiration became more free and natural, though still noisy, from the mucus in the trachea and bronchi ; but the abstraction of blood had little or no effect on the comatose symptoms. The face also assumed a more natural colour and appearance, and the muscles began to lose their excessive rigidity. These favourable changes, however, gradually disappeared, and it was only by having recourse to repeated bleedings, that their restoration was effected.

Sinapisms.—Sinapisms were applied to the chest, abdomen, spinal column, and calves of the legs ; but from the state of the skin, some of them acted very slightly, though they were kept on an unusually long time ; he appeared to be quite unconscious of their application.

Stimuli.—When he was first discovered, the power of swallowing was completely gone, and the mouth and teeth were so close, as to prevent anything being given him ;—by degrees the muscles of the jaw became more relaxed, but it was only after several hours of unremitting attempts, that deglutition was so far restored, that I could get him to swallow the smallest possible quantity of stimulating fluid. This was of marked benefit to him : it raised the pulse, and the respiration became much easier ; it also for a time removed a quantity of viscid mucus which had begun to collect in the mouth and throat, and which considerably impeded the respiration. I made frequent endeavours to excite vomiting, by tickling the fauces with a feather, so as to effect its entire removal ; these, however, were all but unsuccessful.

Cold Affusion.—This was repeated at short intervals to the face, and also to the head, and was of great service in rousing him.

Stream of Fresh Air.—The window and door of the room were kept almost constantly open, and whenever the current of cold air reached the face, there was always a long and deep inspiration.

The expired air had very much the same odour as that in the apartment where he had slept. Besides the remedies above mentioned, the chest, sides, and abdomen, were occasionally rubbed with strong linimentum ammoniæ; and attempts were also made to rouse him by shaking, talking loud, and the application of ammonia to the nose.

Autopsy in the Fatal Case.—The inspection took place 30 hours after the body was taken out of the room. The external appearance of the body was that of a stout, healthy, young man. The face was pale and placid, the lips bloodless, and the whole countenance bore the same expression as when he was first discovered. The skin over the whole anterior aspect of the body was pale, and seemed as if it were shrunk and dry, with only a faint bluish line here and there, marking the course of the subcutaneous blood vessels; but upon the posterior and depending parts it was of a deep livid colour. The muscles, in general, were stiff, but those of the arms so much so, that they resisted strong attempts to flex them. The abdomen was very tympanitic, and the integuments were of a slightly greenish colour. On laying open the thoracic cavity, the lungs were found completely gorged with blood, very dark in colour, and quite fluid, intermixed here and there with a quantity of air, which seemed principally to occupy the exterior part of the lung. The trachea and bronchi were filled with frothy sanguineo-mucous fluid, and the bronchial mucous membrane was slightly injected with blood. It was exceedingly difficult to press out the air or the blood from the lung, and when this organ was incised, it gave to the knife a feeling of solid resistance, quite different from its ordinary elastic and emphysematous feel. There was a small quantity of sanguineo-serous effusion in each pleural cavity, and the pleura costalis seemed to have a higher colour than natural. The pericardium was slightly injected with blood, and it was empty. The right side of the heart was full of blood, dark in colour, and very fluid; the heart itself seemed to be smaller and softer than usual. The valves were a little more injected than natural, but otherwise it presented no unusual appearance. After the heart and lungs were removed from the body, the aorta, and both venæ cavæ discharged a large quantity of dark and perfectly fluid blood into the cavity of the chest, no portion of which was coagulated in the least degree. The stomach was, if anything, a little more injected than in its natural state. It contained a large quantity of air, and also a quantity of porridge in a completely undigested state. The liver was of a very dark colour, quite tinged with blood; it was of a larger size than usual, and the venæ cavæ hepaticæ were quite empty. The gall-bladder was empty, and collapsed, and of a dark brown colour. The spleen was of a darker colour than usual, and of its natural size. The kidneys were very much injected with black blood. The mesentery was of a dark colour, in large patches every here and there, and very much in-

jected in some places. The omentum, especially at the greater curvature of the stomach was of very dark brown colour. The intestinal canal was very tympanitic, particularly in the iliac portion; it contained very little feculent matter, and the mucous membrane was of a natural colour, but in the colon the membrane was of a pale bluish tinge, as were also the contents of the gut at that part. The bladder was very much injected at its fundus, and contained about a pint of urine. On removing the cranial integuments, a large quantity of blood flowed from each incision. The skull was very thick, and the deploe was exceedingly vascular, large drops of blood oozed for some time from it. The dura mater was very much injected with blood, so much so, that when held between the eye and the light it seemed one red mass. The sinuses also were completely filled. There was considerable sub-arachnoid effusion of a semi-gelatinous consistence, especially on the superior and posterior surface of the brain. The veins of the pia mater were distended. At the base of the brain there was little or no serous effusion; but the circle of Willis, and the anterior and posterior spinal veins were quite turgid, and poured out their contents when cut. On exposing the centrum ovale of Vicq D'Azyr, the whole medullary and cineritious parts of the brain brought into view, instantly became covered with small points of blood; the centrum ovale of Vieussens also exhibited the same appearance, and the commissura magna also was of a more red and injected appearance than natural. On cutting into the lateral ventricles, about one drachm of serum was found in each. The tela choroidea was of a brighter colour, and much larger than natural; there was also a small quantity of serum in the third ventricle. The remaining portions of the brain exhibited a natural appearance, with the exception of the exterior being more vascular than usual. The cerebellum was also a little more vascular than what is generally seen; but so soft, that upon being gently pressed with the fingers, it gave way in all directions. The whole spinal cord was, if anything, of a softer consistence than is generally found, and there were no effusions of blood or serum in any part of it.

Owing to the almost universal use of open fire places instead of stoves, in sleeping-rooms in this country, cases of poisoning by the inhalation of carbonic acid gas, happily, are of rare occurrence; and in most of the instances where this has happened, the sufferers have been so long exposed to its influence, that the fatal effects of this noxious vapour have usually arisen long before their situation has been discovered, or even suspected. The cases just now under consideration, where the carbonic acid gas proved fatal to the one and not to the other of the persons exposed, are particularly interesting. We here have two individuals of nearly the same age, equally healthy, sober, regular in their habits, and of similarly robust constitutions; both following the same occupation, and

both, in short, as nearly alike in every respect as could be conceived; equally exposed to the vapour of the carbonic acid (perhaps the survivor more so from sleeping nearest to the stove), and yet it proved fatal to the one and not to the other. No explanation can be given of the more rapidly hurtful effect in the one individual than in the other, unless it be connected with the deceased having been more exposed as he lay on his back, with the shelf before described, but a short distance above him. It is impossible, I believe, to state, with any degree of certainty, at what period the gas proved fatal to the deceased, or, in other words, how long he had been dead before the door was burst open. From the body being quite cold and stiff, and all the depending parts quite livid, it is very probable that life had been extinct for a considerable time. Orfila, indeed, states, that if the body of a person suffocated by a non-respirable gas, or by strangulation, be cold and stiff, we may be certain that more than twelve hours have elapsed since death. In the cases just now under notice, both persons were under the gaseous influence for the same length of time, viz., twelve hours and a half, from 10 p.m., when they retired to bed, till half-past 10 a.m., when they were taken out of the room, on the supposition that the gas began to take effect on them when they went to bed, or even before, as seems probable from what will be immediately stated.

As indicating the deterioration of the air in the small room, from these two men sleeping in it, and the effect of that deterioration on them without its being increased by a lighted stove, I may mention, that A. M— told me that the deceased and he always felt the air of the room close and unpleasant in the morning, that they allowed the window to remain open all day to ventilate it, and only shut it at night when they went to bed, and also that they had often awoke in the morning with a bad taste in their mouths to such an extent, as compelled them to have recourse to rinsing for its removal. It appears exceedingly probable that the atmosphere of the room must have been highly charged with carbonic acid gas shortly after they entered it; and that it began to act on them soon after they fell asleep—or even before they went to bed seems likely, first, from the circumstance of A. M—, having vomited a quantity of porridge soon after he had been taken out of the room, and which appeared not to have undergone any change during the fourteen hours it had been in his stomach, the particles being quite entire, and as fresh as if they had been recently swallowed; and secondly, from a considerable quantity of porridge having been found in the stomach of W. H—, which had undergone little or no change, though, according to the experiments and observations of Dr Beaumont of the United States, porridge is digested, and removed from the stomach in the course of from one to two hours. Thus the gas seems to have had the effect of paralyzing the activity of the stomach, and of retarding or destroying the function of digestion. As an additional proof of

the speedy effect of the gas on them, I may add, that they both fell asleep much sooner than usual, and also, that M— was found lying nearly in the same position in which he lay down, not even having had time to turn, as he says he was in the habit of doing.

I may also state, that the air of the room was so powerfully impregnated with the nauseous odour of the gas, as to be quite discernible by the nasal organs as well as discoverable by chemical re-agents, ten days afterwards, notwithstanding that the door and window had been kept constantly open, and likewise, that the bed-clothes and bedding were so saturated as to evolve the same peculiar odour, so strongly as to occasion to the persons who washed them severe sickness and faintness.

It seems very probable, that in many, if not almost every case of fatal poisoning by carbonic acid gas, the transition from life to death must have been attended with little or no struggling or suffering; and in cases such as the one now related, where there has been no symptom of sickness, no urinary or feculent discharges, no contortion of the muscles of the face, or unusual position of the extremities, and more especially, when the bed-clothes have not been in the least degree ruffled or discomposed, we are justified in coming to the conclusion, that the fatal moment has not been attended either with pain or uneasiness.

The only other point I consider worthy of notice is, the state in which the thumb and fingers of both patients were. I have already mentioned that the thumb was turned inwards to the palm of the hand, and the fingers folded closely over it. This particular state is pathognomonic of cerebral irritation and effusion, and is constantly met with and regarded as a fatal symptom in the hydrocephalus of children and infants. I may also add, that I have seldom or never seen a well marked case of hydrocephalus or even of cerebral irritation and effusion, which was not accompanied by this symptom.

Part Second.

REVIEWS.

On Indigestion and Certain Bilious Disorders often conjoined with it; to which are added Short Notes on Diet. By GEORGE CHAPLIN CHILD, M.D., Physician to the Westminster General Dispensary. 8vo. pp. 219. London, 1847.

DR CHILD has written a very sensible book on a disease, however, of no great difficulty. Notwithstanding the triteness of the subject, we have read it through with considerable interest, and not without

instruction. The book is well put together. The author thinks clearly, and expresses himself with perspicuity and conciseness. He has brought to bear on the topics of which he treats, no small amount of experience, reading and reflection. And his reading is in general up with the current of the day. Of the contents of the work, we cannot at present give more than the faintest outline.

The primary functional disorders in which, according to our author, indigestion commonly originates, are: 1. Disturbance in the circulation of the mucous membrane of the stomach; 2. Disordered sensibility; 3. Weak or irregular muscular action; 4. Morbid secretion. Speaking of the circumstances under which Indigestion most frequently originates, he gives the following as the best marked examples; 1. the dyspepsia comes on after a *fit of indigestion*; 2. it arises during the habitual use of an over-abundant diet; 3. the dyspepsia slowly takes root during a state of general weakness and impaired health, in which the stomach participates; 4. the dyspepsia is excited by a peculiar faulty action of the liver and duodenum, under which certain common forms of biliousness fall. The forms of biliousness to which he refers are: 1. suppression of bile; 2. retention of bile—bilious engorgement—or congestion; 3. overflow or excessive secretion of bile; 4. regurgitation of bile into the stomach. Of each of these topics now enumerated, our author speaks in detail, and some of his observations are highly interesting. He then goes on to treat of the pains observed in indigestion and of their treatment, of tenderness on pressure, on headache in indigestion, on eructation and flatulence, on water-brash, on rumination, on nausea and vomiting, on the appetite and thirst, on the appearances presented by the tongue—the state of the bowels—the urine, on dyspeptic palpitation, and dyspnœa, on hypochondriasis, on the state of the skin, on pseudo-dyspepsia, followed by a chapter on the general treatment of dyspepsia, and another on diet.

On the palliation of the several kinds of pain met with in indigestion, our author has some useful observations, characterised by much distinctness if not by novelty. Among other remedies in cramps of the stomach, he recommends the tincture of Indian hemp, in doses of from five to ten minims dropped on a bit of sugar, and frictions of the epigastrium with a teaspoonful of the tincture of aconite. Cramps of the legs in the night connected with indigestion are prevented, he says, by rubbing the legs before going to bed with a stimulating anodyne liniment, composed for example of the *linimentum camphoræ compositum* with laudanum. In sharp pains in the region of the stomach, which often severely affect dyspeptics, and especially when they recur often after having been removed, he recommends a blister to the spine above the place from which the nerves supplying the part issue. He particularly remarks on the effect of taking food in the relief of headache connected with biliousness, which he ascribes to the unloading of the liver by the flow of the bile, and he says, that a morning headache of this kind

is often prevented by a light supper, which keeps up the discharge of bile during the night. He considers the sulphate of manganese as well fitted to relieve retention of the bile, and even regards it as adding to the effect of calomel as in the following formula—calomel, 4 to 6 grains; compound extract of colocynth, 10 grains; compound powder of jalap, half a drachm; sulphate of manganese, 10 grains. In the acid pyrosis of gouty persons he advises the benzoate of ammonia in 10 grain doses combined with a small quantity of potass. He recommends also in pyrosis and other forms of dyspepsia in which an astringent tonic is indicated, a new substance already known in the arts but not in medicine, the algaravilla, a vegetable substance brought from South America. It is described by Dr Ure as consisting “of pods bruised and agglutinated more or less with the extractive exudation of the seeds and husks.” “The infusion or decoction contains much tannin with a large quantity of mucilaginous matter.” In pyrosis he thinks there is no inconsistency in administering both alkalies and acids, the alkali being given during digestion, to neutralize acid fluid; and the sulphuric or nitromuriatic acid when the stomach is empty, to produce a radical cure by their tonic effect on the secreting vessels of the stomach.

In the chapter on the general treatment of indigestion, he sets out with expressing his belief that this disease is seldom connected with inflammation of much acuteness, and that the superficial erythematic inflammation produced in a previously healthy stomach by a debauch, usually subsides of itself, or at most under a temporary abstinence—or if the disorder be more protracted that a blue pill followed by a saline aperient is sufficient to restore the deranged secretions—but that the erythematic inflammation brought on by a debauch or even by slight errors of diet in a stomach already dyspeptic, often requires leeches or cupping; or if the debility be considerable, dry cupping; and that the occasional sipping of iced water is very useful in this case, provided it be avoided while digestion is going on. In congestion of the mucous membrane, he places his main reliance on counter-irritation, and dry cupping. In excessive sensibility of the stomach, he regards hyocyamus, aconite and hydrocyanic acid as more beneficial than other narcotics, their effect being often assisted by blisters and rubefacients. He admits the utility of nitrate of silver in excessive sensibility, but regards it as inferior in effect to bismuth. In morbid states of the secretion, besides the ordinary treatment, he has found buchu of much service. He gives a wine-glassful of the infusion three times a day, along with occasional alterative doses of mercury. In muscular debility, besides the ordinary tonics, he praises the astringent tonic before spoken of, the algaravilla. The decoction is made by boiling an ounce of the substance in twenty-five ounces of water for a quarter of an hour, and straining when cold, the dose being two or three table spoonfuls thrice a day.

When along with dyspeptic treatment anti-hysterical remedies are

requisite, he has tried the valerianate of zinc; but finds it of little efficacy, and very apt to disagree with the stomach. Creosote, he has found serviceable in advanced periods of the disease, especially when combined with hysteria or cachexia; and when there is neuralgia or great debility, he strongly recommends the pyroxilic spirit. He says he has exhibited it in about 80 cases, and in most instances found it of signal service." It acts as an antispasmodic, and apparently also as an alterative and tonic. His formula directs from half a drachm to a drachm, in a six ounce mixture, composed of equal parts of camphor mixture and peppermint water, of which two table spoonfuls are to be taken twice or three times a day.

*Anatomisch-Physiologische Abhandlung über einige in Knochen Ver-
laufende, und an der Markhaut Derselben sich Verzweigenden
Nerven: VON DR. B. BECK.*

*Anatomico-Physiological Treatise on some Nerves, ramifying in
the Bones and their Medullary Membrane. By DR. B. BECK.
Freiburg in Breisgau, 1846; with Three Lithographic
Plates.*

ALTHOUGH the question, whether the bones are provided with nerves, has been already answered in the affirmative by Duverney (1700), Verheyen (1710), Monro, Bertin (1754), Wrisberg, Murray, and Klint, our existing standard books on anatomy say very little on the subject. The present work is dedicated to Dr Kobelt, the Professor of Anatomy in Freiburg, who has succeeded in discovering and figuring several nerves distributed to bones. The following passage gives some account of these:—

"In the sphenoid bone, Kobelt describes a small branch of the Vidian nerve running in its body, which was previously seen by Wrisberg, a second in the great wing, and a third, a twig from the supraorbital nerve, penetrates the supraorbital fissure, and ramifies on its pars frontalis. Little nervous twigs are also to be found in the temporal, supra-maxillary, and malar bones. The vertebræ are also provided with them, and very frequently a filament is met with, which, arising from a sacral ganglion of the sympathetic, enters the sacral bone through an opening at its anterior surface. The os ileum also possesses nervous filaments, which penetrate it, partly through a large nutritious opening at the fossa iliaca, and partly through openings situated above the upper edge of the acetabulum. Lastly, the tibia of a calf has a nerve which enters it by the nutritious opening, and which was demonstrated to unite in the canal with the posterior tibial nerve, a fact afterwards confirmed by its existence in the human bone."

The demonstration of nerves in bone is one of great difficulty. The following is the method pursued by Dr Beck:—

"After removing the soft parts from the nutritious foramen, a shell-lac injection is thrown into the nourishing vessels through minute tubes. The part is then put in cold water, and when the injection is solidified, the channel

is opened with a chisel. The bony substance being removed, I endeavour to lay open the vascular bundle, expose the nerve within its sheath, and follow it to its most minute ramifications in the marrow of the bone. In cases where the blood-vessels are too small to permit the introduction of a tube, I detach the sheath of the vascular fasciculus, and inject the osseous channel in order to proceed more safely with the chisel. In the bodies of infants, I inject the main arterial trunk at first with turpentine, and subsequently with the shell-lac mass. In order to avoid error, every demonstration was assisted by the microscope and lens."

In this manner Dr Beck has succeeded in demonstrating, that the humerus, ulna, radius, and femur are also provided with nerves. Regarding their general course, it was observed that those of the humerus and tibia run from above, downwards, and those of the fore-arm and femur from below, upwards. Whether these nerves contain filaments of the sympathetic, and are connected with the vegetative processes, is not yet decided. From the circumstance, however, that most nerves, enveloped within vascular sheaths, are connected with the sympathetic, this seems probable, and the fact noticed by Kobelt, of the direct communication of a bone nerve with a ganglion, strengthens the supposition.

When, therefore, portions of bone supplied by nerves are cut through, a painful sensation is experienced. Kœler has stated, that when the tarsal extremities of the fibula and tibia are divided, no pain is felt, a circumstance explained by Beck, who shows that these parts do not possess nerves. He further points out, that the deep-seated pains experienced in many diseases, are more rationally explained, by supposing the nerves in bone to be affected, than by having recourse, as is usually done, to a dyscrasia, morbid influences, metastasis, and other vague hypotheses. In conclusion, he promises to devote his future study to the alterations the nerves and vessels of bone undergo in disease, a promise the more well-timed, since Hasse has endeavoured to show that the pains in articular rheumatism are to be traced to the osseous texture.

We observe that Professor Hyrth, in presenting the work of Dr Beck to the Vienna Medical Society, endeavoured to explain the general direction of the osseous vessels in the following ingenious manner. Considering the situation of the foetal extremities in the uterus, the course of the vessels seems to agree with the laws of gravitation which must influence the entrance of blood into the medullary cavity of the bone. Where the foetal bone is directed downwards, as is the case with the humerus and tibia, the direction of the nutritious vessels is the same, whereas, in the bones having an opposite direction, as in the fore-arm and femur, the vessels in utero will also be downwards, but after birth, owing to their changed position, they will run from below upwards. (See *Zeitschrift der k. k. Gesellschaft d. Ärzte zu Wien*, Feb. 1847.)

We consider the observations made by Dr Beck very important, and as likely to throw some explanation on the symptoms of many diseases hitherto of a very obscure nature. The pains felt in

rheumatism, syphilis, malacostion, and other affections, may, through his researches, be explained by lesions of the bones, acting directly on the nerves distributed in their substance; and when we know that exostosis, caries, necrosis, and softening, are the more evident anatomical characters of these diseases in their chronic state, this view has every degree of probability in its favour.

To the Stethoscope: A Poem.

IN the last No. of Blackwood's Magazine (March), we observe a poem on a medical subject. It occupies eight pages, and is therefore too long to be abstracted entire. We feel ourselves warranted however in giving as a specimen the following fragments:—

STETHOSCOPE ! thou simple tube,
 Clarion of the yawning tomb,
 Unto me thou seem'st to be
 A very trump of doom.

Wielding thee, the grave physician
 By the trembling patient stands,
 Like some deftly skilled musician ;
 Strange ! the trumpet in his hands.
 Whilst the sufferer's eyeball glistens
 Full of hope and full of fear,
 Quietly he bends and listens
 With his quick, accustomed ear—
 Waiteth until thou shalt tell
 Tidings of the war within :
 In the battle and the strife,
 Is it death, or is it life,
 That the fought-for prize shall win ?

Then thou whisperest in his ear
 Words which only he can hear—
 Words of wo and words of cheer.
 Jubilatés thou hast sounded,
 Wild exulting songs of gladness;
 Misererés have abounded
 Of unutterable sadness.
 Sometimes may thy tones impart,
 Comfort to the sad at heart ;
 Oftener when thy lips have spoken,
 Eyes have wept, and hearts have broken.

* * * * *

On a couch with kind gifts laden,
 Flowers around her, books beside her,
 Knowing not what shall betide her,
 Languishes a gentle maiden.
 Cold and glassy is her bright eye,
 Hectic red her hollow cheek,

Tangled the neglected ringlets,
 Wan the body, thin and weak ;
 Like thick cords, the swelling blue veins
 Shine through the transparent skin ;
 Day by day some fiercer new pains
 Vex without or war within :
 Yet she counts it but a passing,
 Transient, accidental thing ;
 Were the summer only here,
 It would healing bring !
 And with many a fond deceit
 Tries she thus her fears to cheat :
 " When the cowslip's early bloom
 Quite hath lost its rich perfume ;
 When the violet's fragrant breath
 Tasted have the lips of death ;
 When the snowdrop long hath died,
 And the primrose at its side
 In its grave is sleeping ;
 When the lilies all are over,
 And amongst the scented clover
 Merry lambs are leaping ;
 When the swallow's voice is ringing
 Through the echoing azure dome,
 Saying, ' From my far-off home
 I have come, my wild way winging
 O'er the waves, that I might tell,
 As of old, I love ye well.
 Hark ! I sound my silver bell ;
 All the happy birds are singing
 From each throat
 A merry note,
 Welcome to my coming bringing.'
 When that happy time shall be,
 From all pain and anguish free,
 I shall join you, full of life and full of glee."

Then, thou fearful Stethoscope !
 Thou dost seem thy lips to ope,
 Saying, " Bid farewell to hope :
 I foretell thee days of gloom,
 I pronounce thy note of doom—
 Make thee ready for the tomb !
 Cease thy weeping, tears avail not,
 Pray to God thy courage fail not.
 He who knoweth no repenting,
 Sympathy or sad relenting,
 Will not heed thy sore lamenting—
 Death, who soon will be thy guide
 To his couch, will hold thee fast ;
 As a lover at thy side
 Will be with thee to the last,
 Longing for thy latest gasp,
 When within his iron grasp
 As his bride he will thee clasp."

Shifts the scene, &c.

And it does shift accordingly from one scene of woe to another, each more gloomy than the preceding. Had the author been a practical physician, he would perhaps have given us other pictures in addition to those described. The Stethoscope would not have been considered "a very trump of doom," but on the contrary, a horn of gladness, relieving in many instances the nervous maiden, the worn out student, or the dyspeptic valetudinarian from imaginary horrors often worse than reality. Had he thought of this more, we might have had some of *l'allegro* mixed with *il doloroso*, which, as far as the public and the stethoscope are concerned, would have been of some service. Still the lines are very beautiful, and exhibit throughout a poetic mind, and a nobility of sentiment of no ordinary character. Did we feel disposed to be critical, we might object to the possibility of a bright eye being cold and glassy, but where there is so much excellence, we have no disposition to parade our exactitude, a quality which, however commendable it may be in a physician, would we fear sadly encroach upon the licence of the poet.

Part Third.

PERISCOPE.

ANATOMY AND PHYSIOLOGY.

ON THE STRUCTURE AND FUNCTION OF THE SEXUAL ORGANS. By ERNST HEINRICH WEBER.

I. It was advanced twelve years ago by Weber, that the vesicula prostatica, near the colliculus seminalis in the prostate, was a rudimentary uterus. At a later period, the same was discovered in the beaver, horse, dog, pig, and cat. In new born rabbits, the resemblance of both the external and internal genitals is so great, that the separation of males from females would be quite impossible, were it not for the divergence of the vas deferens from the tuba. In human hermaphrodites, with prevalent male genitals, the apparent uterus only consists of the more fully developed vesicula prostatica. In the infans androgynus, described by Ackermann, the uterus had not only the situation of the prostatic vesicle, but there could be observed, even on the os uteri, those openings of the ductus ejaculatorii, which are, in the usual cases, to be found on the caput gallinaginis, near the opening of the prostatic vesicle.

II. With regard to the glandular termination of the vas deferens, Weber considers it to be a special organ, which is most developed in the stallion. When investigating into the number of spermatic filaments, he found them very numerous in the vas deferens, less abundant in the finis glandulosus vasis deferentis, and still less in the vesicula seminalis. The function of the latter, therefore, cannot consist in collecting the spermatic fluid, but in furnishing a secretion to be mixed with it.

III. Concerning the function of the tubular uterine glands in the human female, Weber obtained the following results:—1. After conception, the mucous membrane of the human uterus gets softer, and arriving gradually to the thickness of 2-3", it is then called tunica decidua uteri. This metamorphosis of the mucous membrane is occasioned by the increase both of its vascular and non-vascular layer or epithelium. 2. In addition to the enlarged blood-vessels and tubular glands of the vascular layer, there are to be found scattered amongst them newly-formed elementary cells, some of which are nucleated. 3. The tubular glands, which take a serpentine course, and are from 2-3" long, run, like the glands of the stomach, in a perpendicular direction to the inner surface of the mucous membrane, where they get more narrowed, and open into the tunica decidua, communicating to it the cribriform appearance. The opposite and close terminations of the same glands, are not unfrequently divided into two or three vesicles. 4. There is a considerable difference between the appearances in the human female, and in the mammalia. First, whilst the uterine glands of the dog and cat are increasing chiefly at the point where the placenta is to be formed, those of the human uterus seem to grow pretty equally on the whole inner surface of its base and body. Again, the tubular glands of the dog being considerably enlarged in their course, have the appearance of large and plicated sacs, whereas, in the human uterus nothing like this is to be seen. Lastly, in the pregnant uterus of the dog, the ramified villi of the chorion penetrate the openings of the tubular glands: nothing similar could be observed in the uterus of a woman whose pregnancy was of ten weeks duration; nor is a like relation between the tubular glands and the villi of the human uterus even possible, as the simple shape of the former does not in any way correspond to the numerous branches and ramifications of the latter. The idea, therefore, that the villi of the chorion extends to the lobules of the uterine glands in the human female, as well as in the dog, is a mere assumption, unsupported by facts. We should be careful not to extend analogy further than is warranted by facts. Now the occurrence of the tunica decidua reflexa, particularly in the human female, whilst it is wanting in all other mammalia, renders it not unlikely that the other appearances also will exhibit some difference. 5. The placenta uterina of the human female differs from that of the dog in the following points: first, the coarse network of vessels which carries the maternal blood, passes through the whole placenta, and is composed of tubules, the walls of which are considerably thinner—their diameter, however, is about fifteen times larger than those of the dog. Secondly, a dense network of narrow embryonic capillaries gives origin to membranes and folds, whereas, in the human female, the dendritic ramifications divide ultimately into very thin filaments, having in some places button-like swellings. Thirdly, the blood-vessels of the human placenta are not capillaries in the usual signification of that term, their diameter varying from $\frac{1}{4}$ - $\frac{3}{4}$ ", and even more. The arterial vessels, also, in correspondence with these enormous capillaries or veins, do not inosculate, but form, when passing to the placenta, a glomus arteriosus, composed of one artery only, which, after several curvatures, terminates immediately in the before-mentioned enormous capillaries. 6. In the human placenta, as well as in that of the dog, the capillaries, which carry maternal blood, are in close contact with those carrying the embryonic blood. The manner of this contact, however, is very different. In the dog, the first-named vessels are involved and lined by the membranes and folds of the villi of the chorion, whereas, in the human placenta, the opposite relation is to be observed, viz., the ramifications and filaments of the villi of the chorion are lined by the thin walls of the above-mentioned large capillaries, which carry the maternal blood.—*Müller's Archives*, 1846, p. 421-428.

CASE, ILLUSTRATIVE OF THE PHYSIOLOGY OF THE PERIOSTEUM. BY FISCHER.

A stout man, twenty-five years of age, was run over by a carriage, and suf-

ferred fracture of the tibia and fibula, the first being broken at its middle, the second an inch and a half higher. As an appropriate treatment could not suppress the suppuration, and advancing emaciation of the body, amputation was performed at the lower part of the thigh. On closely examining the amputated limb, both the upper and lower portions of the tibia exhibited a necrosed appearance; the latter, however, was less affected than the former. The osseous membrane was 4" in thickness, and composed of three distinct layers. The first, external and fibrous, resembled the healthy periosteum; the second, or middle layer, which was about 2" thick, presented the structure of a spongy bone; whilst the third, or inner one, was very vascular, and resembled inflamed mucous membrane. Now, as the tibia was completely mortified, had its external appearance and volume unchanged, was wholly inclosed by the inner vascular membrane, and had no connexion with the osseous, or middle one, it could not have exuded the material of the new bony substance. Hence, the author is compelled to assume, that in the case related, the periosteum alone yielded the bony matter.—*Casper's Wochenschrift*, 26th December 1846.

MATERIA MEDICA, THERAPEUTICS, &c.

SUB-VALERIANATE OF BISMUTH.

Righini of Oleggio, has devised a mode of forming the sub-valerianate of bismuth, which he describes as serviceable in painful affections of the stomach, in some neuralgias, and in chronic palpitations of the heart.

It is made by dissolving metallic bismuth in nitric acid, with a small addition of distilled water, and then decomposing the nitrate so formed by the valerianate of soda, any excess of nitrate of soda being removed by valerianic acid. The valerianate being dried, is then reduced to powder, and preserved for use in a well-stopped bottle.—*Journal de Chimie* and *Gazette Médicale de Paris*, 13 Mars, 1847.

NITRATE OF STRYCHNIA, BY EXTERNAL APPLICATION, IN CERTAIN FORMS OF GOUT.

Wendt recommends the nitrate of strychnia, in the form of ointment, in irregular gouty affections; for example, in gouty affections of the vertebral column, which, through the filaments of the great sympathetic, attack the chest, and give rise to symptoms imitating angina pectoris. The formula recommended is as follows:—nitrate of strychnia 10 parts; axunge 8 parts: to be made into a perfectly homogeneous ointment, and applied by friction on the sides of the spine two or three times a day.—*Gazette Médicale de Paris*, 13 Mars, 1847.

NITRATE OF SILVER, IN THE FORM OF COMPOUND POWDER, IN CHRONIC DISCHARGES FROM THE EAR.

The difficulty of applying nitrate of silver in the solid form, or in the form of solution, to the tube of the external ear, led M. Bonnafont, a considerable time since, to contrive a powder, which, in cases of chronic discharge from the organ, might be blown in. His formula directs equal parts of fused nitrate of silver, talc of Venice, and lycopodium powder, thoroughly pulverized. He affirms, that with certain precautions as to the previous cleansing of the meatus from purulent matter, and the like, this treatment is of the greatest service.—*Bulletin de Thérapeutique*, and *Gazette Médicale de Paris*, 13 Mars, 1847.

LIME WATER, IN CHRONIC INFLAMMATIONS OF THE INTESTINAL CANAL.

M. Boisseuil insists on the great utility of lime water in various forms of chronic inflammation of the bowels, illustrating its beneficial effects by cases. In particular, he recites the case of a person who, having suffered for six months under a chronic gastritis, had been subjected, without benefit, to many kinds of ordinary treatment, till he was put on the use of lime water, mixed with two-thirds of milk.—*Journal de Médecine de Bourdeaux*, and *Gazette Médicale de Paris*, 13 Mars, 1847.

The lime water recommended by M. Boisseuil, is what is still often termed in France “eau de chaux seconde;” that is, lime water, made by pouring water on lime, which has been previously subjected to the action of water. The water first poured off from lime, contains often, if not always, a portion of potassa, which, being very soluble, is wholly taken up, so that the second lime water, as it is termed, is more pure and less acrid than what is termed the first lime water. Some Continental authorities still speak even of a third lime water. These distinctions have ceased to be recognized in this country, and they appear hardly to deserve attention. With regard to the utility of lime water in chronic inflammatory affections of the alimentary canal, it seems undeniable that it is often very serviceable, though this effect is by no means generally acknowledged at present. In what manner it operates does not very clearly appear. And it would be desirable to gain clearer ideas of the particular kind of inflammations in which it is beneficial, and the precise limits within which its use should be confined. We have especially remarked its signal effect in relieving the uneasy feelings which attend an aphthous state of the primæ viæ.

ALARMING EFFECT OF CANNABIS INDICA, ADMINISTERED IN A CASE OF DYSMENORRHEA. BY MR BARROW of Clifton.

The patient was a married lady, twenty-six years of age, of a thin spare habit, and naturally feeble constitution, who has suffered for some years from dysmenorrhœa. Mr Barrow having found unpleasant effects from the opium and morphia which he had administered on previous occasions, and following the recommendation of a medical friend, prescribed on this occasion the tincture of cannabis indica. Three doses of five drops each were given, with an interval of two hours between the first and second doses, and three hours between the second and third. Some ease was experienced after the last dose, and a short time after some degree of drowsiness was observed. Some time after, how long does not clearly appear, she got up and joined her family at dinner, eating as usual, and taking one glass of wine. Some incoherence of manner and speech was observed during the meal, and almost immediately after she became violently sick and vomited, being at the same time altogether unconscious; the extremities and body became cold, the wrist was pulseless, the eyes wide open and staring, the pupils somewhat contracted, and quite insensible to the strongest light, with strong convulsions of the whole frame, and involuntary twitchings of the muscles, which latter symptoms remained for a day or two, whether awake or asleep. The state of complete insensibility lasted for about a quarter of an hour; but there remained during the whole night a partial state of unconsciousness, as also the other symptoms in a milder degree. The pulse, which varied from 140 to 150, was extremely feeble, and intermitted from time to time during the two following days. The pains and uncomfortable sensations about the uterus and its appendages continued for a fortnight or longer, which Mr Barrow thinks must be ascribed to the drug, as the patient had never suffered in a similar way at the termination of any former menstrual period. The patient had not been previously subject to fits of any description.—*Provincial Medical and Surgical Journal*, March 10, 1847.

Mr Barrow has here made out a tolerably strong case against the Cannabis Indica; but yet the evidence is not entirely conclusive; there is no reason to doubt that the drug was the immediate exciting cause of the affection which followed its administration; but the question still remains behind—were the special qualities of this drug, and not those which it holds in common with narcotics in general, the immediate agents in producing the train of symptoms which arose? It appears that even opium and morphia, on previous occasions, had excited excessive nausea and vomiting, lasting for several successive days; so that it is not very unlikely that, on this occasion, had one of these been administered, and the patient had got up as stated, a similar train of symptoms would have ensued. In short, we feel inclined to think that the alarming symptoms were owing more to the strong predisposition in the patient than to the virulence of the exciting cause.

SURGERY.

NEW METHOD OF OPERATING FOR THE CURE OF VESICO-VAGINAL FISTULA. By M. JOBERT.

M. JOBERT has proposed and executed successfully a new plan for the cure of this distressing malady. We have formerly noticed the autoplasmic operations performed by this surgeon for the purpose of obliterating vesico-vaginal fistulæ, to the best means of curing which he has devoted much attention. The occlusion of such fistulæ by means of autoplasmic operations are necessarily attended with great difficulty, and, in the hands of most surgeons, would probably fail in the great majority of instances.

The method now proposed by M. Jobert is termed "*autoplasmic par glissement*." It consists in loosening the connexions of the posterior wall of the bladder by means of an incision made through the mucous membrane across the anterior part of the cervix uteri. In the words of M. Jobert—

"This operation consists in making a semicircular incision across the anterior part of the cervix uteri, at the point where the latter is joined by the vagina. The dissection is made from below upwards, and the edge of the bistoury is kept directed towards the cervix, so as to protect the bladder from danger. Immediately after this incision and the dissection, which easily isolates the base of the bladder, retraction of the anterior portion of the vagina takes place, and displacement forwards of the posterior region of the bladder. The apposition and re-union of the edges of the fistula then become easy; and thus the reparation of a very large breach may be accomplished."

The edges of the fistula, which are there found to approximate each other much more easily, are pared, and united by suture.—*Revue Medico-Chirurgicale de Paris*, January 1847.

M. Jobert has operated in this way in three cases of vesico-vaginal fistula with perfect success; and, in two of these cases, the usual method by cauterization had been previously found unavailing. A catheter is to be retained permanently in the urethra for the first two or three days, and is afterwards to be very frequently introduced to prevent any accumulation of urine in the cavity of the bladder.

The operation must be one of extreme nicety, and difficulty of execution. Great danger appears to be incurred on the one hand of wounding the posterior wall of the bladder, and on the other hand of approaching too nearly, in the incision, the fold of peritoneum lying between the uterus and bladder. Even with the precautionary measure of the use of the catheter, the risk of the approximated edges of the fistula being bathed by the urine must be great.

The operation appears, however, to have succeeded well in the hands of M. Jobert; and any proposal which may tend to the relief of these distressing and unmanageable cases, must be looked upon as of no small importance.

TREATMENT OF BURNS BY AMMONIA.

M. Guerard's treatment of burns, by the application of strong aqua ammoniæ, was noticed briefly in our last number.

"Immediately after the application of the ammonia the pain ceases, and the relief continues as long as the liquid remains concentrated. From what I have myself experienced, I think that the application of the ammonia ought to be continued for at least an hour, to produce a permanent good effect, after which the part is left bare without any further dressing. If the burn is extensive, this length of time may not be sufficient. The application ought to be continued in every case as long as the sensation of heat and smarting continues."—*Annales de Thérapeutique*.

In burns of the fingers, or of parts which can be immersed in the ammonia, this is the best method of application. Where this cannot be done, a compress, saturated with ammonia, is to be laid over the burnt part, and its evaporation prevented. In applying it to the face, care must be taken of course to prevent the ammonia coming in contact with the conjunctiva. The remedy appears to be applicable only to cases of slight burns, where the integuments are not destroyed. M. G. affirms that, in these cases, it not only removes the pain, but prevents vesication of the skin. In cases of extensive burn, care must be taken that the patient is not made to inspire the ammoniacal vapour. The dressings must be applied with forceps, as the contact of ammonia produces vesications of the healthy skin.

RESTORATION OF THE NOSE, AND REMOVAL OF DEFORMITY OF THE FACE. BY DIEFFENBACH of Berlin.

Dr Stevenson Bushnan relates the following case, as communicated to him by Dieffenbach:—

"It was late one evening," said he, "that three strangers requested to see me—a man and two women; and one of whom, who was closely veiled, wished to speak with me, as I was informed, alone. Her companions being retired, she seemed to cast her eyes around the room to ascertain that no one else was present; and then, with some hesitation, and without uttering a word, she slowly raised the thick black veil by which her face and head had been concealed, and a great portion of her person enveloped.

"I had seen much in my life," continued he, "that was shocking; and, as I thought, the most hideous deformities of face and figure were so familiar to me that I could behold them comparatively unmoved; but here I started back, shuddering and horror-struck. A death's head, a skull with glistening eyes, red and everted eyelids, and a skeleton face, stood involuntarily grinning before me. The cheeks and lips were absent, and in their place a thin red skin covered scantily the almost denuded bones. In place of a nose was a large triangular hole, through which, when she gave utterance to sounds—speak she could not—the tongue protruded, for the palate bones were gone, and the œsophagus was freely exposed to view. At the upper portion of this dreadful orifice, through which three fingers could be introduced, a red and bony process protruded, extending upwards between the remains of eyebrows, while its lower margin was the remains of the upper jaw, now reduced to a small and toothless bony rim. Where cheeks had been, red and indurated cicatrices crossed each other in all directions, and, as I have said, ectropium existed to a great degree. This is no exaggerated portrait of a young girl of eighteen years of age, member of a noble and powerful family, but nevertheless the victim of scrofula. I stood late at night and alone with this dreadful apparition—a foul

thing, which forcibly reminded me of the prophet of Khorassan, when he raised his veil. Instead of a human voice, hissing and unintelligible sounds proceeded from the cavity in the face; and I drew back with horror, as she advanced to place her finger on my nose. Well did I understand the appeal, and deeply did I regret my inability to ameliorate the condition of this unfortunate lady. When I had made her understand by signs—for she spoke but Polish, which I did not understand—that I could do nothing for her, an exciting scene followed; she cast herself before me in a state of the deepest mental agony, imploring by signs my assistance; and when I summoned her companions, one her brother, the other her governess, to assist in calming her, she hastily resumed her veil; for, for years she had not allowed her family to behold her deformity. The governess spoke French, and I told her I could do nothing but recommend a mask; and then I hastily withdrew from this strange midnight scene, the recollection of which will never be effaced from my mind.

“The next day I left Berlin for Vienna; and scarcely had I arrived there, than the veiled lady again presented herself to me. She had heard of my departure, and had immediately followed me. Here I called in the assistance of the great dentist Carabelli, with whose aid I succeeded in procuring a set of teeth and a false palate which facilitated eating, and made her speech more intelligible.

“The more I considered this case,” continued Dieffenbach, “the more convinced I felt that I could do nothing further; and that it was utterly impossible to obtain a nose, or even a fleshy covering for the hole in the face. The bones of the forehead were nearly naked, and the thin, spare, and cicatrized skin of the temples was not sufficient for the purpose. A casual examination of the arm, however, showed much loose and thin skin, and, as I raised a fold of it between my fingers, and pressed it into the form of a nose, the idea struck me that I might transplant a portion of it to a spot near the inner edge of the right eyebrow, where the skin was not so much destroyed, and afterwards remove it by degrees in the same manner as heavy monuments are sometimes slowly transplanted from one place to another.”

Dieffenbach acted upon this idea. A nose was formed from the skin of the upper part of the left arm, and that in a very novel manner. A triangular piece was marked out, about a third larger than the estimated size of the required nose; an incision was then made along its sides and upon the outer and inner thirds of its base. By subcutaneous dissection, this triangular portion of skin was separated from the muscle, but still left attached to the arm by its somewhat broad apex, and the middle third of its base. The edges of the wound on the arm were then brought as much together as possible by straps; and the sides of the triangular portion of skin turned inwards and properly secured. It was three months before the parts had healed, and then Dieffenbach had obtained what may be called a triangular *loop of flesh* attached by its base and apex to the arm. This was to form the new nose. The parts being healed, Dieffenbach proceeded to fix the prepared nose to the inner edge of the right eyebrow, which, as I have said, was thick and puffy; this he did in the old Taliacotian method, by detaching the apex of the new nose, or triangular portion of thickened skin, from the arm, uniting it *in situ* with the brow, and fixing it by sutures and appropriate bandages. He told me that he had many doubts as to the success of the operation; and the great advantage of this mode of operating is, that if we do at first fail in attaching the new nose to the forehead, we may commence *de novo*, at any rate we may heal the wound we have made on the brow, and again attempt to attach it to the stump which still remains upon the arm. Again, it is preferable to the common Taliacotian operation, where, even if successful, the patient's face is deluged with the results of suppuration, as is not the case in that performed by Dieffenbach. But to return to the case before us: contrary to expectation, the stump did unite to the brow; in a few days all ligatures were removed; the patient bore the distressing position of her arm with the greatest fortitude, and could with difficulty be persuaded at the end of a fortnight to

allow the base of the triangle to be cut away, and the arm to be released from the face. But I will, in this place, no longer follow the case; it was perfectly successful; and suffice it to say, that by transplantations, frequent and repeated small incisions, and parings and graftings, and by the introduction of tubes and needles, and by compresses, a respectable nose was at length formed; by appropriate operations the ectropium of both eyes was relieved, the many and hard cicatrices were removed from the face, and at the end of eighteen months the patient was presented to the Klinik a very different being to what she was when last there; and she quitted Berlin with the consciousness that, by her steadfast and enduring perseverance, she had compelled the Professor to an operation he had deemed impossible, and even by the success of which he had been amply rewarded.—*Medical Times*.

M. Pigne, in a communication made to the Parisian Medical Society, relates the following extraordinary operation performed by M. Sanson, for a cancerous tumour of the orbit.

OPERATION FOR CANCEROUS TUMOUR OF THE ORBIT, BY M. SANSON.

In the year 1834, Mr B. came to Paris for the purpose of undergoing operation for a cancerous tumour of the orbit; the growth had acquired the size of the head of a fœtus. Pains in the limbs and some degree of previous paralysis, showing that the brain was, in all probability, implicated, induced Professor Sanson at first to set aside all idea of an operation. But the patient having expressed his settled determination to destroy himself if the operation was not proceeded with without delay, M. Sanson consented to operate in the presence of several British practitioners, fellow-countrymen of the patient. A portion of the frontal, the nasal, and maxillary bones having been removed, the dura mater was found to be affected, and was likewise excised. But the cerebral substance itself was occupied by the disease, and after a short conference, in which Sanson alone persisted in the opinion that it was his duty to achieve the operation he had begun, one ounce and a half of cerebral substance was removed by a section which penetrated into the lateral ventricle. The cerebral vessels were cauterized with a heated probe, and the patient recovered completely from the effects of this tremendous operation—no paralysis, no disturbance whatever of the cerebral functions, having been observed. Sixteen months after, the patient died in consequence of reproduction of the growth in the scar, and on dissection the disease was found to extend as far as the posterior cerebral lobe.—*Medical Times*, March 13, 1847.

ON AMPUTATION AT THE LOWER THIRD OF THE LEG, FOR DISEASE OF THE TARSUS, AT ST. BARTHOLOMEW'S HOSPITAL.

In the *Lancet* for March 13th, 1847, Mr Coote gives three cases where amputation at the lower third of the leg was performed for disease of the tarsus. He seems to think that this operation is an improvement on amputation below the knee, especially in females, the length of whose clothes enables them to conceal the deformity. But why should Messrs Lawrence and Stanley only go down to the middle third of the leg in these cases. Why not preserve the whole of it by performing Mr Syme's operation at the ankle-joint? We very much doubt whether reviving the old operation of amputation at the lower third is an improvement. It is certainly very difficult to adapt a useful apparatus in such cases. In Edinburgh, on the contrary, we are in the habit of seeing patients, walking about with an artificial foot, almost as well as with a natural one, the entire leg being preserved, in exactly the same cases as those recorded by Mr Coote. We would advise the surgeons at Bartholomew's to read Mr Syme's papers, inserted in this journal, 'on amputation at the ankle joint,' an operation which, although it is properly appreciated in France and Germany, does not seem to have penetrated its way into the large hospitals of the Metropolis.

STATISTICAL RESEARCHES ON OPERATIONS FOR CATARACT.

Between 1827 and 1842 Professor Jäger operated on 1,011 patients affected with cataract. Of these 764 were lenticular, and 40 capsular. In 728 cases he performed extraction by the upper section; in 9, by the lower; in 58, by the partial. In 129, he operated by depression, and in 87, by division and laceration. Of the patients, 63 lost their sight, viz. 3 operated on by partial extraction, 33 by extraction through the upper or lower sections, 6 by division, and 21 by depression. Extraction, therefore, has furnished the larger proportion of success. It would be desirable, however, to know what motives induced Professor Jäger to prefer one mode of operating in preference to another.—*Gazzetta Medica di Milano*, 26 Decembre 1846.

PATHOLOGY AND PRACTICE OF PHYSIC.

CASE OF DIAPHRAGMATIC HERNIA. BY D. H. LUSCHKA.

A robust man, of fifty years of age, died suddenly from extensive cerebral hemorrhage. On opening the chest, the stomach was found in the left pleura, with the colon situated over and to the side of it. The lung was pushed upwards and backwards, and appeared compressed at its lower portion, as if from copious pleuritic exudation, of which, however, there was no trace to be discovered. The heart was considerably displaced, so that one-half of its substance was covered by the right lung. From a more close examination, the following results were obtained. The stomach was completely enclosed within the left pleural cavity, its fundus and cardiac portion looking downwards, and to the left side, whilst the pyloric extremity was superior, and towards the right side. The esophagus was considerably lengthened, and presented a curve below the diaphragm, which ascended from the foramen, through which the esophagus passes to the left cavity of the chest. It was closely adherent to the ascending colon above, to a portion of the duodenum below, and to the hernial passage. Above the great curvature of the stomach, and at the right side of its pyloric portion and the duodenum (the greater portion of which was contained within the cavity of the chest) there were found the transverse colon, closely adhering to the stomach, and the contracted omentum. The descending colon passed down behind the stomach to the abdominal cavity. The hernial passage was situated on the left edge of the sternum, closely behind the cartilages of the three left false ribs. A distinct view of the passage was, however, only to be had at some points of its circumference, where the edges appeared rounded, and of cartilaginous firmness. The walls of the opening were closely adherent to the organs which passed in and out, by pseudo-membranes. The passage, although it reached the margin of the tendinous centre, was confined to the muscular portion of the diaphragm. Its form and size resembled that of the palm of the hand.

Having had no opportunity of inquiring into the previous state of the individual, Luschka does not positively state the cause of the displacement. Considering, however, that the morbid appearances indicate the long existence of the hernia; that the fatal termination had no immediate relation with it; whereas any sudden injury of the diaphragm, of similar extent, would have induced a more rapid death; lastly, that the extensive adhesions are so many distinct evidences of previous inflammation, he feels himself entitled to ascribe the origin of the hernia to suppuration, and resulting perforation of the diaphragm.—*Archives für Physiol., Heilkunde*, 1847, Heft. 1.

CASE OF HORN-Y GROWTH ON THE HEAD OF AN OLD MAN. BY BLASBERG.

A man, eighty-four years of age, had a horn-like prominence on the right temporal region, near the eye, which originated eighteen months previously, from a wart. Its length was three inches, and its thickness at the base an inch and a half. The whole was projected in a straight direction from the head, and appeared curved only at the point anteriorly. The individual experienced no inconvenience, whatever, until some quack undertook to remove the excrescence, by a caustic ointment, the employment of which gave rise to a malignant ulceration, followed in four months by death. *Casper's Wochenschrift*, 26 December, 1846.

ON THE EMPLOYMENT OF SULPHATE OF QUININE IN ACUTE ARTICULAR RHEUMATISM.

Several French journals have lately directed attention to the employment of quinine in acute rheumatism. We are informed that it was M. Briquet, now one of the physicians of La Charité, Paris, who first administered it in this disease. The success which he obtained could scarcely vanquish the repugnance which many had to prescribing so energetic a medicine. Some unfortunate cases, also, in which from the dose being too large, or the individuals peculiarly predisposed, alarming accidents, and even death had been caused, added to the discredit in which it was at first held. At present, however, a reaction has taken place in its favour, and a considerable number of the hospital physicians in Paris are of opinion that, given with prudence, in moderate doses, beginning with $1\frac{1}{2}$ grammes to an adult, and .75 gr. to a child, the sulphate of quinine causes effects of a slightly energetic nature only, at most, trifling cephalalgia, noises in the ears, and slight indistinctness of vision.

Amongst the physiological effects, one of the most interesting, without doubt, is the depressing action which it exerts on the circulatory system, the pulse daily diminishing in force and frequency. In a few days the pulse has been known to fall fifty beats, and that without the individual experiencing any very well-marked symptoms of intoxication. Another important effect, is the modification it produces in the rheumatic pains. In general, at the end of twelve or twenty-four hours the patients are considerably relieved; the swelling and rigidity, however, still remain. Unfortunately this result is not always constant and durable, but there are exceptional cases, for in the great majority of instances, the amelioration is rapid and permanent.

It has been objected to this treatment that it does not prevent the cardiac complications which are so likely to arise. But do we know any absolute means of doing this? Do we not see rheumatic pericarditis develop itself in individuals treated by the most energetic antiphlogistics? But in some cases it has been observed that the cardiac disease has diminished daily under the use of sulphate of quinine.

On the whole, the treatment of acute articular rheumatism by sulphate of quinine, when employed with prudence, is without danger. Doubtless, it will not succeed in every case, but where is the remedy that will? Whenever there is no amelioration on the third or fourth day, notwithstanding that the dose has been gradually increased, the medicine should be discontinued, and some other treatment employed, such as bleedings, nitrate of potass, colchicum, opiates, &c. But whenever the pains are rapidly diminished, and the pulse rendered less frequent, it is very probable that the articular rheumatism will be cured on the eighth day. In one case it only continued four days. Sometimes it is useful in robust and plethoric subjects to precede the use of sulphate of quinine, by a bleeding from the arm. It may be added that the drug is easily administered, that children take it without hesitation, notwithstanding its bitter taste, and that it will, probably, be of the greatest service in the treatment of acute rheumatism in young persons, a period of life when blood-letting if not injurious, is seldom advantageous.—*L'Union Médicale*, 23d Fevrier, 1847.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXVI.

FIFTH MEETING—*Wednesday, February 17th, 1847.*—DR HAMILTON, P., in the Chair.

ON THE RELATION AND TREATMENT OF RHEUMATISM AND CHOREA, BY DR BEGBIE.
—This communication is printed entire in our present number.

Dr Gairdner quite coincided with the author as to the perfect safety and great utility of arsenic (when judiciously managed) in the treatment of many diseases. He had recently seen a most gratifying example of its benefits in a case of intermittent headache, of unusual severity, which yielded at once to the arsenical solution, only a very few moderate doses being required to effect a cure, for which the sufferer was extremely grateful. On the other hand, it must be admitted, that there are idiosyncrasies, not very frequently, but occasionally met with, which make it quite impossible to administer this remedy even in small doses. In one instance he had prescribed it, somewhat empirically, in doses of 5 drops of the Fowler's solution. It was a case of hypochondriasis, with gastric disorder. The patient was purposely kept in ignorance of the nature of the remedy; but complained of it next day, as being something very *dreadful*; and could not be persuaded to continue the use of it, on account of the distress which it produced. But such cases, so far as his (Dr G.'s) experience went, are of rare occurrence.

Dr Taylor observed that great difference was experienced when arsenic was given on an empty or on a full stomach. It was borne much more easily in the latter case.

Dr Pattison related a case of chorea, of six years standing, the remarkable feature in which was, that the right arm could not be kept down to the side, except by restraint, and the moment it was raised it sprung up to the head. The muscles were quite rigid.

ON RESTORATION OF THE UPPER AND UNDER LIP, BY PROFESSOR SYME.—This communication appeared entire in our last number.

DISCUSSION ON THE EFFECTS OF ETHER INHALATIONS.—*Dr Gairdner* suggested the propriety of the members present favouring the society with the results of their experience on the inhalation of ether.

Dr Spittal called the attention of the Society to a statement which had been made public, as to the danger of explosion taking place in the air-tubes during inhalation of ether vapour, should this accidentally catch fire; and observed that *Dr Handyside* had informed him that he had made some experiments on this point, which seemed to show that such disastrous results were not likely to occur. *Dr H.* injected the ether vapour into the lungs of the dead body, and found that the vapour, when set fire to, *did not explode*, but burnt with a comparatively slow flame, which, moreover, *did not extend beyond the glottis*.

Professor Syme considered that the Society had hitherto exercised a sound discretion in not hastily alluding to this subject, and, perhaps, it would be better even now to wait until our experience of the effects of ether, under different circumstances, was more extended than at present. But as the Society

seemed anxious to hear the opinions of those who had tried it, he had no objection to state what he had observed. As regards any fear of combustion, he thought there was no risk of the flame extending backwards. What was seen in gas pipes, or in flexible gas tubes, was sufficient to show that this fear was altogether imaginary. With respect to the question whether ether did produce insensibility to pain during surgical operations, there could no longer be any doubt. Dr Boot had stated that it should not be given to children. These, however, he thought were the best subjects for it. He had observed in some cases that a state of excitement was induced, and that the individual lost all power of restraining his movements. It had happened in consequence that some operations, which are usually performed with the greatest ease, had been rendered very difficult, and in a few could not be accomplished. He had known individuals experience considerable sickness and vomiting after the inhalation, and in some females it had induced distressing hysterical symptoms of long continuance. In one case he had seen convulsions occasioned. He did not attach much importance to causing extinction of pain during operations. No doubt if this could be accomplished without running any risk of inconvenience, or danger, it would be an advantage; but when, as in the instances to which he had alluded, the contrary was the case, he considered it more likely to be injurious than beneficial. He was far from being prejudiced against it, however; on the contrary, he had been the first to employ it publicly in the Royal Infirmary. Good surgery consisted in carrying out more important objects than removing temporary pain, and so far as his experience had hitherto gone, he was not much impressed in favour of ethereal inhalation.

Dr Moir alluded to a midwifery case, in which he had applied the long forceps while the patient was under the influence of the ether. Although very great force was employed before the head could be brought down past the point of resistance, yet the patient, as she declared afterwards, was perfectly unconscious of the pain she must otherwise have suffered. She remembered nothing connected with the birth of the child, till she heard it scream, which was not for some minutes after its birth, it being born in a state of asphyxia. While under the ether, the uterine action was strong, and so were the contractions of the abdominal muscles. She answered correctly the questions put to her during its action. Dr Simpson had informed him that he had tried it in some natural cases, and that in one case where the mother had suffered very severely in her former delivery, during the passage of the head, she had been unconscious of its birth when under the action of ether.

Dr Hughes Bennett remarked, that it was a matter of great importance to put on record all those facts connected with any injurious effect apparently induced by the ether. That it possessed the power ascribed to it of removing for a time the consciousness of the individual, and thereby destroying sensation, was everywhere admitted. The danger likely to be incurred was from its indiscriminate application. He had that morning examined the body of a woman who had died after amputation of the thigh, performed a fortnight ago. He had seen the operation completed under the influence of ether, without the slightest sensation of pain being produced in the individual. The immediate cause of her death was considered to be secondary purulent depositions; and, in point of fact, a large abscess had formed in the stump, and the right wrist joint was full of purulent matter. The patient, however, had also pneumonia in both sides, in the inferior lobes, which were condensed, presenting red hepatization well marked at their lower portions, whilst the superior lobes of both lungs, but especially the left, were affected with bronchitis, yielding on section a copious frothy fluid. Now the pneumonia in this case was recent, and it might be asked how far it had been occasioned by the ethereal inhalation. Dr Bennett also thought that, in many cases, it would be necessary to auscultate the lungs and heart very carefully before giving ether. He could not help forming the opinion, that where incipient tubercle existed in the lungs, or valvular disease in the heart, its employment would not be free from danger.

Mr Gunning stated that the strong statements so constantly put forward, to the effect that individuals under the influence of ether are quite unconscious of what is going on around them, and that common sensation alone is interfered with, led him to reflect whether the opinion were accurate; and, from the study of its effects upon others as well as upon himself, he could not but conclude that such an opinion was unfounded. In every case where the effects are properly developed, there seems to be induced such a change of the very vascular grey matter of the brain, as affects not only common sensation, but also volition and special sensation. In his own case, for example, he was not only less conscious of painful impressions made upon the skin, but felt unable to withdraw the limbs, or to articulate for some time, both of which imply an effect upon the motory nerves. He likewise had flashes of light from the eyes, soon softened down into a warm general illumination, implying an effect upon special sensation, just as when similar phenomena follow pressure on the optic nerves, or the action of galvanism. In the case of another gentleman the hearing was completely lost, while the muscular action was not violent. These and other cases show that the effects of ether are not limited to nerves of common sensation, but are general over those of special sense and volition. Nor should it be omitted that, even with power to will and feel, there is *indifference* produced by the diverting influence of the pleasure, or vivid imaginations, which the ether occasions. In short, the co-existence of diminished sensation of voluntary power, and indifference combined, account for the remarkable results during cutting. The pain is less felt, or not felt at all, and the patient has neither the usual will nor power to withstand the operation.

In his own case he felt precisely as when under the influence of the nitrous oxide gas. The chest first became warm and expanded, an agreeable and scarcely controllable excitement followed, and, lastly, a temporary collapse and carelessness—the muscles, previously in high tone, giving way, and the joints relaxing.

In most cases there seems time for the ether reaching the brain from the bronchial membrane; but it may be that in other cases it propagates an influence to the grey matter through the pneumogastrics, equally resulting in a change of the cerebral circulation, as when carried direct through the blood. This easier access of the ether to the brain perhaps explains the difference between its effect and those of alcohol, which, as usually taken, will be much longer in reaching the head, seeing it has to be absorbed in the *primæ viæ*, and afterwards carried through the *right* side of the heart. Such an explanation is supported by the alleged rapid intoxication from inhaling the vapours of whisky to those engaged in casking it. Were the vapours of alcohol tried in the same way as ether or laughing gas, he had no doubt the same effects would be witnessed. This view suggests the inquiry, how far it might be useful to have speedier access to the system by such a mode of administering certain drugs?

The only other point is the sense in which the usefulness of ether is to be understood. When convinced of the benefit of a want of pain in many nervous cases, he was not so sure that such an evil is to be compared with the sickness and constitutional disturbances which the full operation of ether occasions. Certain it is, that the older surgeons remarked that operations without pain did not afterwards do so well as when it existed; and it is a fair question, if the operations by ether have done as well as similar operations without it? Have the progress of cases after operation been as carefully attended to as the mere phenomena during the cutting? has it been as faithfully made public?

Dr Taylor observed, that he was not so sure that individuals did not at the time experience pain, although, on recovering from the intoxication, they did not remember it. A drunken man will receive blows, and be perfectly conscious of them at the moment, although he afterwards forgets how he obtained

them. The only case where he had seen the ether tried in the Infirmary was one of amputation of the toe, and the boy was crying out, "Oh my toe," during the whole time of its performance.

Professor Syme said that the observation of Dr Taylor reminded him of a case bearing relation to his statement. A man entered the Infirmary with a wound in his scrotum, which he stated had been received while in a state of intoxication. On examination it was found that both testicles had been removed, a circumstance of which the patient was quite unconscious. He only remembered, on waking by a road-side, observing two men walking away from him at some distance.

Dr Roberts had paid considerable attention to the subject of the employment of sulphuric ether in surgical operations, so far as his own department (as a dentist) was concerned. He had up to this date successfully used it in seventy-four cases, for the extraction of teeth, and about twenty times in experiments. He had witnessed no bad effects of any consequence, having administered it to children in operations, his own among the number. There was one case he thought it right to mention. A lady of about thirty years of age, of great delicacy of constitution, who had the week before suffered from a smart attack of hemoptysis, was anxious to inhale the ether preparatory to the removal of a tooth. In about half a minute, however, there was such a general prostration of the system, coldness, and clamminess of the skin, with a rapid sinking of the pulse, and general appearance of distress, that he at once arrested the inhalation, fearing some bad effects from re-action. With the aid of restoratives, however, she recovered in about a quarter of an hour, and had no relapse. Two young ladies, of a sanguinous temperament, of about the age of sixteen years, were seized precisely in the same manner. After the removal of the teeth, and while the effect of the ether was passing off, they were affected with strong hysterical crying and sobbing; one of them continued in this state for nearly twenty minutes, and in both cases the recovery was *sudden*; in these and other similar cases he had found the ammoniated tincture of valerian, in the dose of ʒss. to ʒj. in water, of service in soothing the patient. Another lady after the operation was over, had an attack of violent shivering and chattering of the teeth, similar to an attack of ague, for nearly half an hour, and this to her great amusement, mingled with a slight feeling of alarm.

In two-thirds of the patients that have inhaled the ether to its full effect, he felt confident that limb from limb might have been removed with impunity, as far as the feeling of the patient was concerned. In some, where he allowed only a partial effect to be produced, the patients expressed their feelings as having a dreamy noisy sort of idea of what was going on, but no pain.

Dr Spittal's remarks, as to the absence of danger from explosion, when a light was near the patient, he could fully confirm, having, on repeated occasions, made the attempt to "*blow up*" my patient at his own request. The person alluded to was Mr A. Young, cutler. He applied lighted tapers to his mouth in every stage of the influence of the ether, as also to that of one of his own assistants, when under the effect of ether, with the same uniform result. The light was always *extinguished*. After repeated trials, at different times, he found it impossible to produce combustion in the smallest degree, although the flame of the taper was drawn into the mouth fully an inch.

He fully concurred in what fell from Professor Syme and Dr Bennett, that caution is required in the use of this agent. For his own part, in any well-marked case, where there existed any head or chest affection, he would not make use of the vapour of ether, unless the family medical attendant was present, and gave his sanction to its use. From his own experience, he thought it necessary that the medical man who makes use of the vapour of ether upon his patients, should have inhaled it himself. He had done so, and been in such a state of insensibility from its effects, that any operation might have been performed upon him, with as little feeling on his part, as upon a dead body. The confidence thus derived from a knowledge of its progressive effects on one's-self,

is of the greatest importance to its successful application to others. He would strongly recommend *perfect quiet* while the patient is inhaling, and that he should *not* be spoken to until he begins to make remarks himself. Many of those unpleasant feelings and symptoms described, he was confident, arose from these two essential points not being sufficiently attended to.

SIXTH MEETING—*March 3d*, 1847.—DR R. HAMILTON, P., in the Chair.

ON SPINAL APOPLEXY, BY DR PEDDIE.—The author read a case, with a very elaborate memoir, embracing all that had been previously recorded of this rare disease. The communication will appear entire in our next number.

Dr Hughes Bennett said that the paper just read abounded in practical observations of a very valuable character. The author had stated that only sixteen cases of the disease were on record, including his own. Dr Bennett begged leave to add another, which he had examined in the Infirmary about two weeks previously.

A man, ill-treating his wife, knocked her down, and kicked her violently in the neck. As she did not move, he took a piece of burning wood from the fire, and applied it to her nates. When brought to the Infirmary shortly after, she was found to labour under complete paralysis of all four extremities, and of the trunk; indeed of all the parts below the second cervical vertebra. The excito-motory functions, however, of deglutition and respiration continued. She died in eleven days, apparently from the severe effects of the burn, although latterly there was considerable dyspnoea. After death, both nates, and portions of the inferior extremities were found much burnt. In the former, sloughs were formed, extending two inches deep into the glutæi muscles, and extending over a considerable space, especially on the right side. On searching for the cause of the paralysis, no mark could be perceived on the neck externally. There was no fracture of the bones. On removing the spinal cord, its membrane and substance appeared healthy. On bisecting it, however, a recent coagulum of blood, about the size and oval form of a melon-seed, was found to occupy its centre, encroaching, perhaps, a little more on the right than on the left side. It was situated opposite the second cervical vertebra, explaining, by its position, the paralytic symptoms occasioned.

The case related by Dr Peddie, as well as others on record, proved that individuals might survive hemorrhage into the cord for some time. In one instance, given by Cruveilhier, the patient lived five years subsequently. The case was also valuable in a diagnostic point of view, showing how the suddenness of the paralysis distinguished the disease, from congestion, myelitis, or spinal meningitis, in which pain, prickings, or numbness of the extremities and other obscure symptoms, generally preceded loss of motion and sensibility. It seemed that slight movement could be produced in the toes by a strong voluntary effort, and contractions produced by tickling or irritating the soles of the feet. The latter were excito-motory actions, but he thought the former could only be explained by supposing that some motor filaments in the diseased portion of cord, had escaped the morbid action, and were capable of communicating the influence produced by the will. Velpeau and others had related cases, where, from injuries of various kinds, the cord has been completely cut across or destroyed, and yet the nervous functions in parts below the injury were more or less retained. A rigid analysis of these cases had induced Dr Bennett to conclude that there was no evidence in such instances of the cord having been completely destroyed or cut across during life. In the celebrated case of Rullier, for example, quoted by Olivier, Abercrombie, and others, as ‘complete disappearance’ of the cord, and yet where the individual could exercise voluntary movements of the lower extremities, a reference to the original case would show that filaments of the anterior and posterior columns were found perfectly intact on examination after death. With regard to the treatment, he thought there was one point on which Dr Peddie had not laid sufficient stress;

namely, the necessity, at an early period, of perfect rest. He thought this essential, in order to secure the absorption of the clot as much as possible, and to prevent the occurrence of secondary inflammation in the cord. With this view, all violent purgatives should be avoided, and all unnecessary movements by the attendants prohibited.

Dr Peddie had thought it unnecessary to mention rest as an element in the treatment, because it was secured by the paralysis. Again, change in position was necessary in the latter stage of the disease, to prevent, as much as possible, the sloughs which were so likely to form on the back.

Dr Simpson doubted if the sudden paraplegia spoken of by *Dr Bennett* as pathognomonic of spinal apoplexy, ought to hold that rank. He doubted it on the following grounds. Most members of the society had seen cases of palsy of one or more limbs, occurring in infancy and childhood during teething, or after attacks of measles, scarlatina, and other febrile affections. From the date of the paralytic attack, or blight, the affected limb grew imperfectly, and at last you had the person, when he reached puberty, presenting an atrophied infantile-like limb or limbs attached to the body of an adult. As yet, we knew little of the true pathology of this curious and by no means rare affection, but it was probably not the effect of spinal apoplexy at least, as the disease was too limited in most cases to be the effect of such a lesion of the cord, and sometimes invaded an upper extremity, leaving the lower quite entire. *Dr S.* had seen one or two cases of this affection where the type of the paralysis was true paraplegia, and where it occurred suddenly, the little patient walking a few hours before palsy occurred. But except such instances, if infantile paralysis were the result of spinal apoplexy (which was highly improbable), the sudden supervention of paraplegia could not be regarded as diagnostic of spinal apoplexy.

Mr Syme agreed with *Dr Bennett* as to the suddenness of the paralysis constituting a good diagnostic symptom. In the usual cases of what were commonly called 'blight,' febrile or other symptoms usually ushered it in. He had never seen a case where voluntary motion remained after the cord was destroyed.

Dr Gairdner mentioned some particulars of a case of paraplegia in a young boy (about eleven or twelve). The disease came on gradually, and he altogether lost the use of his lower limbs. No particular cause for it could be discovered. He was in mind acute, and in all other respects healthy; but under-sized for his age. After the trial of many remedies ineffectually for the cure of this disorder, he gradually and spontaneously recovered the use of his limbs. He is since dead: but having fallen under the charge of some other practitioner, at the time of his fatal illness, he (*Dr G.*) was unable to say what occasioned his death, or to throw any additional light on his disorder, or on the cause of his very unexpected recovery.

Dr Richard Mackenzie related the case of a gentleman of delicate constitution, who had been subject for some months to rheumatism and periostitic attacks. After general indisposition for two or three days, accompanied by lassitude, paraplegia suddenly supervened, which, on examination, a few hours afterwards, was found to be complete. There was pain on pressure, over the fourth and fifth dorsal spines, with total loss of voluntary power over the bladder and rectum. Leeching, cupping, blistering, and active purgation were employed, and the patient progressively and slowly recovered. At present, eight months after the attack, he can walk well, with the assistance of a stick, and his general health is good.

CASE OF PERFORATING ULCER OF THE INTESTINE, BY JOHN MACFARLAN, Esq.—This case was that of a man-servant, under forty years of age, subject to dyspepsia, who was seized suddenly on the sixth of June, 1846, with intense symptoms of peritonitis, and died the following morning. An ulcer, half an inch in diameter, with smooth, rounded edges, was found in the duodenum

through which the intestinal contents had been extravasated, causing exudation of recent lymph, to a considerable amount. The peculiarity of the case was the unusual appearance of the ulcer, resembling, to a great extent, the chronic ulcer of the stomach.

Mr Syme mentioned a case in which ulceration of the intestine had taken place under peculiar circumstances, and showed the parts concerned. A malignant stricture of the rectum, at its orifice, had been ascertained to exist between one and two years, without producing more than local inconvenience, when the patient, a gentleman, seventy years of age, who had been out the day before, in the discharge of his ordinary duties, suddenly complained of pains in the abdomen, and fell into a state of prostration, with indifference to external impressions. From this condition he gradually sunk, and died at the end of forty hours, from the commencement of the attack. On examination, the disease was found to constitute a ring surrounding the orifice of the bowel, and, immediately above this, a small ulcerated orifice was perceived. The extravasation through this aperture causing irritation of the textures, on which it immediately acted, and neighbouring peritoneum. The case seemed to illustrate the improbability of fistula in ano, always originating, as Sir B. Brodie has alleged, from ulceration of the intestine.

Dr Simpson mentioned two cases of perforating ulcer of the bowel, one of which he had seen with Mr Syme. In one of the cases, the ulcer perforated into the vagina. In the other it had led to abscess around the rectum, which required to be opened. Neither was fatal.

Dr Spittal described the case of a young man who had laboured under ordinary disease of the hip-joint, some of the circumstances attending which, however, were very remarkable, and he did not think had yet been recorded. In the progress of the case a sinus formed a little above the joint, from which at first a purulent discharge took place. Subsequently, however, this was accompanied with occasional discharges of flatus, and small quantities of feculent matter. On *post-mortem* examination, a sinus was found to lead from the acetabulum—which had become perforated by the disease—down the internal surface of the pelvis, beneath the peritoneum, until it arrived at the lower end of the rectum—below the point of reflection of the peritoneum—into which it entered by a small rounded opening; thus at once revealing the peculiar source of the discharges mentioned.

DISCUSSION ON THE EFFECT OF ETHER INHALATIONS.—*Dr MacLagan*, in reference to the prevalent use of ether in surgical operations, said that he lately had the opportunity of conversing on the subject, with two of the most eminent surgeons in London, and that he was thereby confirmed in the impression, that greater caution and discrimination were required in the employment of ether than seemed generally to be considered necessary. Several cases had occurred in which rather alarming symptoms appeared to be the result of its employment. That, in particular, two cases had been mentioned, one of amputation at the thigh, in London, skilfully and rapidly performed, and one of lithotomy, at Colchester, not less so, in which, though the ether had been successful in deadening the pain during the operations, there had been in the case of amputation violent convulsive twitching of the limb, with very excruciating pain, after the patient had been put to bed, followed by rapid and fatal sinking; and in the case of lithotomy, great prostration of the vital powers, which, though strong stimulii were used, never rallied, and death soon followed. That though these fatal issues, in operations of so serious a character in themselves, might not be imputable solely to the ether, these, and other cases in which injurious effects followed its use, formed a reasonable ground for the exercise of greater prudence; and although far from wishing to decry its beneficial influence in many cases, he was not, from analogy, prepared to admit, that the sudden universality of its adoption, was indicative of the permanency of its favour in the eyes of the profession and of the public.

Mr Syme observed that since the last discussion held upon this subject, his unfavourable opinion, respecting the effects of ether inhalation, had increased. In addition to the injurious effects then spoken of, he had found, that in most cases, nausea, and very uncomfortable feelings were induced by it. In the surgical department of the Royal Infirmary, the nurses, who had resided there many years, and possessed considerable experience, were opposed to ether, from the restlessness and unpleasant effects it produced on the patients. He did not consider the fatal results hitherto said to have been derived from its application, to have much weight, as an objection, on account of the difficulty of ascertaining how far this depended on the inhalation.

Dr Simpson observed that it appeared to him, that one of the most curious phenomena connected with the history of etherization, was the rapidity with which the discovery was spread and adopted among the members of a profession proverbially so prejudiced as our own. Its history, in this respect, was greatly different from that of the introduction of inoculation, of vaccination, of auscultation, &c. And he believed that this was merely a token and sign of the more healthy, liberal, and enlightened state of the professional mind in our own times. As to the safety of the process *Dr S.* begged the society to remember the fact that it had now been employed in, probably, thousands of instances—and yet, only two cases of alleged death were averred to have occurred. Granting that these two patients did die after two severe operations, during the performance of which, etherization had been adopted, it was still possible that they died, as of old, of the effects of the operation, and not of the effects of the ether. It would require strong, impartial, and accurate evidence to throw all the blame, under such circumstances, upon the etherization. Besides, it was generally allowed, that the state of etherization was physiologically and pathologically identical with that of inebriation. Now how many thousands of cases of deep inebriation occur among the population of these kingdoms every year, and week, and day; and yet, how seldom was a death directly traced to a single fit of simple intoxication! When intemperance did prove a cause of death it was almost always combined with exposure to cold, with injuries, with neglect of proper means of restoration, and other avoidable causes that aggravated its effects—and, indeed, without which the patient's life would have been quite safe. But *Dr S.* believed that harm might accrue from giving the ether inhalation in surgical and other cases in an improper manner, and without due precautions. Time and experience, however, would enable us to avoid and rectify these errors. One great secret in its safe and effective employment seemed to be, to give it, from the first, in a large and rapid dose, in order to pass the patient through the state of excitement, and into that of insensibility, as speedily as possible. If a prolonged effect were required, this could easily be obtained, by afterwards exhibiting an additional dose from time to time, as the influence of the former was commencing to wear off. A continuation of small and imperfect doses, certainly, often threw the patient into a state of disagreeable excitement, raised the pulse, &c. He was of opinion that few, or almost no persons could withstand its influence, when administered in a powerful and speedy dose. And the lower animals were as susceptible as the human subject. He had seen, at Barnton, two young horses thrown by it, and castrated without the slightest struggle when thus etherized. One of them fell down within two, and the other within four minutes after the etherization was begun. It had been imagined that the use of ether might interfere with the recovery of patients after operations, and prevent the healing of their wounds, &c. In the first amputation, performed in the Edinburgh Infirmary, under its use, by *Dr Duncan*, the stump healed altogether by the first intention—a sufficiently rare occurrence in hospital practice. *Dr S.* stated that he had used etherization in a case of extreme pain, apparently attendant upon the passage of biliary calculi. *Dr Wilson* had previously given the patient two drachms of laudanum without any relief. She speedily fell into an unconscious state, under the ether inhalation—her cries and moaning ceased, and she

slept for some hours, and then awoke with the present fit over. Dr S. had seen it cut short the pains of dysmenorrhœa. But of its use in medical cases we as yet know little. As to its employment in midwifery, Dr S. stated that the more he had used it, the more convinced did he feel that some years hence, it would come to be greatly used in obstetric practice. He related one or two cases in which he had exhibited it since the publication of his notes on the subject (MONTHLY JOURNAL, *March* 1847), the patients being sent into a dreamy state under it—and the child being expelled by the action of the uterus, whilst they were thus unconscious. Its use in midwifery had been objected to on the ground of the difficulty of having a proper apparatus for its exhibition always at hand. Dr Simpson shewed to the Society the inhaler which he had made, and had now often used. It was a flattened oval flask (exactly of the shape and size of a common pocket brandy flask,) made of metal—having one small aperture in the side, for the inspired and expired air to pass—and a moveable mouth-piece attached to its open upper extremity. It had no valves, for he thought all valves useless, and some patients breathed with them with much difficulty. The present instrument was cheap, portable, durable, and perfectly effective. With it the patient had at once a free and full dose of the ether, and hence, he believed, it affected most people more readily and effectually than the more complicated apparatus generally used.

Dr Christison ascribed the universal and rapid adoption of etherization to the facility, by means of which accurate professional knowledge was now communicated to practitioners, through the medium of the medical press.

Mr Syme did not agree with this explanation. For instance, surgeons were still amputating the leg, for disease of the tarsal bones, although he was convinced that the time would one day arrive when such practice would be considered very bad surgery. He believed that the profession was still open to the reproach of admitting what was truly useful, very slowly, and of hastily adopting what was foolish.

SCURVY IN EDINBURGH.—Mr Spence stated that he had lately met with several cases of scurvy, and wished to know if the prevalence of the disease had been noticed by others. The cases which he had seen had occurred in persons in middling ranks of society, in whom the disease could scarcely be attributed to diet, either as regarded its quantity or quality. As regarded the use of the potato, especially, most of his patients had never used them much, even when plentiful; and in one of the best marked cases, in particular, the patient had for many years made it a rule never to eat potatoes after the 1st of January till the next crop came in. The disease, in these cases, had generally commenced with ecchymoses on the legs, accompanied by pain and stiffness in the part, great lassitude, and prostration of strength; and all of their gums were more or less affected.

Dr Hughes Bennett had also seen several cases of scurvy at the Royal Dispensary. In some of these, the local disease was confined to induration, and extravasation, of blood into the ham—presenting the usual bruise marks, with petechiæ in greater or less abundance. In others, it was confined to the gums. He had been enabled to trace the disease in every case to a want of fresh vegetables, more especially potatoes, or to an insufficient diet. None of the cases were very severe, the strength was not much reduced, and they rapidly recovered on improving the quality of the diet. On examining the blood microscopically, he had found that in some it was normal, in others, the yellow and colourless corpuscles were mixed with an unusual number of granules.

Dr George Paterson had seen three cases. One of these was a commercial traveller, who was in the habit of living on good food. It is true he had not eaten potatoes lately, and did not much care for them at anytime.

Dr Peddie said, that he had lately seen several cases of the disease, and had treated two in the Minto House Hospital and Dispensary. Both patients were railway labourers, from the neighbourhood of Newbattle (near Dalhousie). The cases were severe, attended with such prostration of strength, that syncope

occurred in both instances when they were being carried from the hospital-gate to bed. The pulse was quick and weak, tongue furred, countenance anxious, gums spongy and bleeding, urine bloody, and large masses of extravasated blood were present in the popliteal space, with numerous clots and patches, of varied colour, on both extremities, accompanied with considerable swelling. The two cases were nearly alike. Anxious to learn if they had been supplied with food at the "truck system" stores, where he knew much badly-cured pork, ham, and rotten salt fish, and other unwholesome provisions were disposed of, he questioned them on the matter, but found they had purchased at a victual-dealer's shop in the country. Their food for the last year or more appeared to have been tea, coffee, or bread, daily. Every second or third day some pork-ham, occasionally vegetables, very seldom potatoes, and more rarely, not oftener than on the Sundays, and not always then, a little fresh meat. Considering that although the absence of acid matter from a sparing vegetable diet might in part account for the disease, yet that the small quantity of *fresh meat*—of wholesome animal nourishment—might have as much to do with it, he put the patients at once on "the full diet" of the house—the broth and the meat, and at the same time, gave three times a day a wine-glassful of the infusion of quassia, with twelve drops of the diluted nitric acid. The bowels were kept free with the compound powder of jalap. An immediate amendment took place in all the symptoms, and the one patient was dismissed cured in a fortnight, and the other is now (3d March) nearly well after ten days treatment.

SEVENTH MEETING.—*March 17th, 1847.* DR R. HAMILTON, P., in the Chair.

ANNUAL REPORT OF THE DISEASES OF THE EDINBURGH POLICE FORCE. BY DR TAIT.
—The Edinburgh police force consists of 304 men—of whom 189 perform night duty—91 day duty—and 24 are supernumeraries or recruits. The latter are almost always on night duty—the consequence of which is, that the amount of sickness among this part of the force is very great. During the last year there have been 855 cases of sickness, amongst the whole force, giving an average ratio of no less than 281·25 per cent.; of these 528 were in the night force—211 in the day men, and 116 amongst the supernumeraries; being an annual ratio of 279·29 per cent. in the night; 231·80 per cent. in the day, and 487·47 per cent. in the supernumerary force. There was an increase of 100 cases over the preceding year; the greatest part of which was amongst the men on day duty, and amounted to nearly 40 per cent. Various tables were introduced in order to show the difference in the amount of sickness, amongst the men in different sections of the town, the general result of which was that it prevailed to the greatest extent amongst those on duty in the Canongate, High Street, Grassmarket, Cowgate, Canal Basin, &c. The difference betwixt these and the New Town districts was very remarkable, and amounted in some of them to upwards of 200 per cent. As compared with the members of the yearly benefit societies, it was shown that the increase of sickness amongst the police was upon the whole not so great as amongst these; the increase amongst the members of the societies having amounted to a sixth part, and that amongst the police to an eighth part. Whilst sickness appears thus to have increased generally during 1846, it is somewhat remarkable that there has been a considerable decrease amongst the scavengers and lamplighters. The average number of days sickness amongst them being four days, and that amongst the members of the yearly societies nearly seven days. The diseases with which the police have been attacked during the year were chiefly affections of the respiratory organs. Next to these, diseases of the stomach and bowels. From about the 12th of August, to the end of October, diarrhœa was most prevalent, and in June there was an undoubted case of cholera Asiatica, the pathognomonic symptoms of which were detailed. This case was more particularly

alluded to in order to correct a mistake into which the compiler of the monthly tables of mortality had fallen.

Dr Gardner agreed with the President in his high estimate of the value of details of this description as to the effects of peculiar causes of disease on peculiar classes of the community. In the paper which *Dr Tait* read last year, the effects of cold in the production of disease were particularly insisted on; the night watchmen having been much more affected than the rest of the police force with those diseases usually imputed to the agency of chills. The two seasons were remarkably distinguished from each other by the degree of cold which prevailed in them, and it would therefore be important to contrast the state of the health of the police force, not merely in regard to disease in general, but in regard to specific classes of diseases, that we may be able thence to form some estimate of the real effects of this powerful agent on persons so peculiarly exposed to it, and in two seasons so remarkably contrasted with each other in this respect. In the present winter we had abundance of ice of such thickness that it was fit for skating long before the end of the year. In the corresponding period of 1845 the weather was remarkably mild; and it continued to bear this character during the whole of the winter of 1845-46, for there was no ice that winter much thicker than window glass. It would be well, therefore, if *Dr Tait* would supply the Society with some facts of the sort which he (*Dr G.*) had indicated, either at this time or when he printed off his paper.

Another point on which he (*Dr G.*) desired more complete information was as to the alleged case of Asiatic cholera; in regard to the diagnosis of which it would appear that *Dr Tait* is at issue with *Dr Stark*. Without impeaching *Dr Tait's* judgment and power of distinguishing this disease, he (*Dr G.*) might be permitted to say that, in the enumeration of symptoms which *Dr Tait* had given, there was no mention made of the state of the urinary secretion, which we used to consider to be as pathognomonic of the oriental disease as perhaps any other symptom whatever.

Dr Tait replied that he had only mentioned the most striking symptoms observed in the case of cholera, having no wish to take up the time of the society with a minute detail; suppression of urine, however, might have been stated as having existed for nearly three days; and he might also have referred to insatiable thirst and a burning sensation in the epigastrium. The stools were entirely free from bile and almost tasteless, and the fluid vomited was very like the water swallowed, and also tasteless. In reference to the difference of temperature, he observed that he had already bestowed some attention upon this subject, but the result hitherto was any thing but satisfactory. A very low temperature, uncombined with other circumstances, such as snow and wind, in short stormy weather, did not so much swell the sick list, or give such a particular form to the diseases as might have been anticipated. He thought, however, from the facts which had come under his observation during the severe frosts experienced at the beginning of the present year, that he would be prepared to give a more satisfactory answer to *Dr Gardner's* inquiries in his next report.

OBSERVATIONS ON PUERPERAL FEVER. By *DR T. M. LEE*.—The author gave a short account of two fatal cases of this disease he had attended in the beginning of winter, in both of which there was evidence that it was of an erysipelatous character. The child of the first died of erysipelas when a fortnight old, and his nurse suffered slightly from the same disease when he was ill. Erysipelas appeared on the hips of the second before her death. And the medical practitioner, who attended both during labour, was seized with erysipelas on the same day with the first, and a day or two before the second, and had an unusually severe attack. While he was ill one of his servants had inflammation of the lymphatics of one arm and corresponding axillary glands, proceeding from a slight abrasion of the cuticle of one of her fingers. There was reason to believe that the contagion must have proceeded

from a case of croup, which had been attended by the practitioner for about ten days before he was taken ill.

Dr Lee also described a dissection which he made when the disease was prevalent in Edinburgh two years ago. This case, too, was evidently erysipematous.

Dr Lee stated that he had observed four kinds of disease in lying-in women, which had been probably all occasionally described under the name of puerperal fever, namely, pure inflammations, infectious fevers, the inflammation with sloughing, that occurs in protracted and difficult labour, and puerperal erysipelas. And he recommended that, as it is only by the employment of prophylactic measures that we can expect to exercise any power over the true malignant disease, the term puerperal erysipelas should be substituted for that of puerperal fever, to remind us of the nature of the disease, and the sources of contagion which are to be avoided. Remembering that the contagious poison is not confined to the common form of external erysipelas, but may exist in inflammatory affections of the mucous membrane and other tissues, and even of the skin, which, though truly erysipematous, may not exhibit the ordinary characteristic appearance of that disease; such as aphthous and diphtheretic inflammation of the alimentary canal and of the respiratory and genito-urinary mucous surfaces; including many cases of croup, sore throat, influenza, dysentery, inflammatory swelling of the glands, and pemphigoid, and other eruptions of the skin.

ALVEOLAR HEMORRHAGE COMPRESS, CONSTRUCTED BY R. REID, DENTIST.—The instrument and mode of application were exhibited by Dr Spittal. The paper on this subject, with figures, will be found in our January number.

Dr Roberts stated that as the original inventor of the "Compress," his object was to have as little in the mouth as possible, in fact nothing more than to convey the necessary but gentle pressure upon the bleeding vessel. He therefore objected to Dr Reid's compress, as it not only pressed upon the desired point, but entirely filled the mouth, passing round the entire denture forming a sort of gag. Dr Reid had stated that his (Dr Roberts) compress must give such pain as to prove "insupportable," and that it could not be applied to more bleeding points than one. But should half-a-dozen bleeding points require the application of pressure, and as many separate compresses of his be required, they would not fill up the mouth one third so much as Dr R.'s for one bleeding point alone. As to pain, it is not necessary in Dr Reid's compress, or his own, to employ more pressure than the band of a hat would produce. The compress has been used in six very severe cases. In one of these the instrument was kept on for four hours, without the slightest inconvenience. Dr Reid says, a patient using his compress could not lie down but on one side, on account of the requisite support being on the other. But Dr Reid's patient could not lie on *any* side, his compress requiring support on both sides of the head. This point, however, was not of much importance, as medical men would prefer the patient's being supported in as upright a posture as possible. The great objection to Dr Reid's compress was, the great mass of metal inserted unnecessarily into the patient's mouth. The mode of attachment, however to the upper jaw, was a decided improvement.

Dr Spittal considered that the size of the pad and plate, by diffusing pressure over a larger surface, rendered its continuance less irksome to the patient.

OBSTETRIC SOCIETY OF EDINBURGH.

SESSION VI.

SECOND MEETING.—Feb. 10th, 1847. DR SIMPSON in the Chair.

INHALATION OF ETHER IN THE PRACTICE OF MIDWIFERY.—Dr Simpson continued his report of cases in which he had employed ether during parturition. He detailed one forceps case, and several instances of natural labour, in which he

had used it since the date of his last communication. (See last number of Monthly Journal, p. 717.) From these cases he inferred—1. That the inhalation of ether procured for the patient a more or less perfect immunity from the conscious pain and suffering attendant upon labour. 2. That it did not, however, diminish the strength or regularity of the contractions of the uterus. 3. That, on the other hand, it apparently (more especially when combined with ergot) sometimes increased them in severity and number. 4. That the contraction of the uterus, after delivery, seemed perfect and healthy when it was administered. 5. That the reflex assistant contractions of the abdominal muscles, &c., were apparently more easily called into action by artificial irritation, and pressure on the vagina, &c., when the patient was in an etherized state. 6. That its employment might not only save the mother from mere pain in the last stage of labour, but might probably save her also, in some degree, from the occurrence and consequences of the *nervous shock* attendant upon delivery, and thereby reduce the danger and fatality of child-bed; and 7. Its exhibition did not seem to be injurious to the child.

Dr Simpson mentioned a case in which he had employed the inhalation of laudanum. It was the lady's second pregnancy. She miscarried at the third month, during her first pregnancy. On the present occasion, severe sickness and vomiting came on about the same time after conception, and creating great fear of another miscarriage. The retching and vomiting continued, with slight intermission, for nearly two days, in despite of the use of ice, prussic acid, half-grain opium pills, &c.; and the patient was complaining much of weakness and want of sleep, when *Dr Simpson* made her inhale some laudanum for a few minutes from a small ether inhaler, hot water being applied to promote its evaporation. The patient speedily began to complain of drowsiness, and was left in a state of sleep, from which she awakened in a few hours, much refreshed. The irritability of the stomach afterwards disappeared; and in four or five days she was able to proceed on a journey of 300 or 400 miles.

ULCERATION OF THE CERVIX, &c., DURING PREGNANCY.—*Dr Cumming* related a case of mucous polypus, with slight ulceration of os uteri, accompanied by considerable hemorrhage. In the month of June, last year, the patient complained to him of having been weakened by a draining of blood from the womb of rather more than two months' duration. Suspecting ulceration, an examination, by means of the speculum, was made, and a small polypus, attached to the lower part of the cervix uteri just within the os, was discovered, and likewise a very superficial ulceration round the orifice. Having nothing with him at the moment with which to detach the polypus, *Dr C.* touched both it and the ulcerated surface very freely with nitrate of silver. From that moment the hemorrhage ceased. On the next examination, some days afterwards, no polypus could be discovered—the ulceration was proceeding favourably—and ultimately the case did well. In all probability, the polypus had been detached by the free use of the nitrate of silver, and had come away subsequently. At the time of this slight operation, neither the patient nor *Dr C.* had any idea that she was pregnant; and it was with some surprise, that precisely seven months thereafter, he was summoned to attend her in her confinement. The child was at the full time evidently, perhaps even above the average size. There was nothing remarkable about the labour, and the recovery was good. The case, though perhaps not very uncommon, is interesting, as showing under what unfavourable circumstances, in some instances, conception will occur (for both the polypus and hemorrhage must have existed at that period), and pregnancy will go on.

Dr Thomson mentioned the case of a woman he had delivered of her thirteenth or fourteenth child, who had a polypus hanging from the back wall of the cervix. It did not affect either the pregnancy or the delivery, and he did not interfere with it.

CARCINOMA UTERI DURING PREGNANCY AND LABOUR.—*Dr Somerville* men-

tioned a case of carcinoma of the cervix, where the woman aborted after being pregnant for five or six months.

Dr Simpson had met with three cases in which women had gone on to the full time, while labouring under carcinoma.

In the first case, he saw the woman in the Royal Infirmary, when six months pregnant. At that time, the septum, between the rectum and vagina, was already perforated by carcinomatous ulceration. She went on to the full time. As the disease did not extend to the uterus, but affected only the vagina, and surrounding textures, the first stage of labour went on, and was completed naturally; the child was then extracted by the forceps. It was necessary, first, to incise freely the carcinomatous mass lying behind the vagina, and in bringing down the head, the perineum, which was quite indurated and tuberculated tore in its whole extent. The infant was alive and healthy. The woman had a rapid convalescence, and lived for more than two years afterwards: the carcinomatous ulceration gradually excavating and destroying almost the whole contents of the pelvis.

In a second case, which he had seen at Hamilton, the neck of the uterus was affected; it burst during the progress of labour. The child was still-born, and the woman died immediately.

The third case he saw with *Dr Barry*. The woman had been ill for three days. She was very much exhausted, and her pulse very rapid. The cervix was indurated at one side, and did not seem at all inclined to yield. Two or three small incisions were made through the indurated portion. This allowed the head to pass, and the delivery was completed after five pains. It was too late, however. The patient's pulse never fell, and she sunk in two or three days afterwards.

Dr Simpson alluded to a case of the same nature, that had occurred at some distance from Edinburgh, and in which delivery was effected by the attendant practitioner by craniotomy. He doubted the propriety of this operation, and argued, that if in any instance we be justified in trying to save the child, at the expense of some additional immediate risk to the mother, it is in the case in question, where the mother's life is, from her existing disease, not worth more than a few weeks, or at most, a few months purchase. He would recommend that the diseased and obstructing part be freely incised before the patient's strength is exhausted, for nature generally at last effected this very operation by her own efforts—that is, the parts at last became torn and lacerated, but often when it was too late.

LACERATION OF THE CERVIX UTERI DURING LABOUR.—*Dr Thomson* mentioned the case of a woman whose labour was brought on by a fall in the eighth month of her first pregnancy. When he saw her the waters had been away for thirty six hours; the pains were very strong; the os dilated to the size of the shilling, very rigid, and the breech presenting. While he was making an examination, he felt the cervix tear under his fingers, the fissure running to the left side. The child was born alive within twenty minutes.

LABOUR OBSTRUCTED BY AN OVARIAN TUMOUR.—*Dr Somerville* related a case of difficult labour from an ovarian tumour. The woman was in her first labour, and the pelvis was nearly filled up by the tumour, which entirely prevented the descent of the child's head. She was freely bled, to induce as much relaxation as possible, but without in any degree assisting uterine dilatation, which had been rendered tedious from the premature rupture of the membranes. As the tumour evidently contained fluid, it was punctured from the rectum, which admitted the discharge of some of its contents. The opening was then enlarged by an incision made by a curved bistoury from the rectum, from which still more of the fluid was discharged. After waiting for some hours to see the effect of uterine contractions, in compressing the head of the child against the tumour, and so emptying it as fully as possible, it was evident that nature was inadequate to complete the delivery, and craniotomy was performed. The child was extracted after much exertion and with great difficulty. The woman re-

covered from the puerperal state, but within a few weeks died from some other affection. During the time she survived, a discharge similar in its nature to what escaped when the tumour was first punctured, continued to pass from the rectum, and on examination after her death, the tumour was found to be ovarian, and contained a tooth and some hair.

POLYPUS OF THE UTERUS AND RECTUM.—*Dr Pattison* mentioned the case of a woman who died suddenly and unexpectedly, after the removal of a polypus from the cervix uteri. She was of a soft leuco-phlegmatic temperament, and had been much reduced from a constant draining of blood from the polypus for three years. The polypus was the size of a small orange, it was ligatured with a piece of silver wire. The discharge stopped immediately. She died eight days after without any apparent cause. She complained of no pain, and had no fever.

Dr Simpson stated a case of uterine polypus in an old person that he had seen with *Dr Girdwood* of Falkirk, and in which death occurred before the ligature applied had entirely cut through the stalk of the polypus. He mentioned another case in which a severe attack of phlegmasia dolens followed the application of the ligature to the neck of a very large fibrous polypus. In most instances he had found simple excision of the neck of the polypus the speediest, and, he believed, also the safest method of removal, except when the neck of the polypus was very large or placed very high.

Dr Simpson showed a specimen of a true cellular polypus that he had lately removed, and which grew by a thick pedicle from the outer surface of the anterior lip of the cervix uteri. It was of an elongated flattened form, about an inch and a half in length, and composed of cellular substance, enclosed in a layer of mucous membrane. The latter was thrown into several strong folds, and gave the tumour an irregular, plicated, and porous appearance. The woman had a child about ten years previously, but has not been pregnant since. She complained of a constant vaginal discharge, and was besides annoyed by the end of the polypus occasionally protruding from the vulva, and leading to irritation. *Dr Simpson* removed the tumour by dividing its pedicle with a curved scissors, and ten days after he destroyed the root of its attachment with caustic potass. The patient is now quite well, and no remnant of the polypus remains.

Dr Simpson showed a polypus smaller in size, but of precisely the same anatomical characters which he had lately removed from the rectum of another patient. It had given rise to much irritation, and occasional hemorrhage. Both tumours were remarkable for their great whiteness after having been kept for a short time in spirits. He found polypi of the rectum of this kind by no means very rare, frequently giving rise to much irritation and hemorrhage, and easily removed by at once tearing or cutting through their slender stalks.

ON ETHERIZATION.

Since we last noticed this subject, although the inhalation of ether has been practised to a great extent, much of the enthusiasm which at first prevailed respecting it has been dissipated. The occasional unpleasant, and in a few instances even fatal effects which have resulted from its use, have caused a salutary check to the extravagant anticipations which were formed with regard to it. Further experience only can enable us to form correct notions of those circumstances which may render its application warrantable. In the meantime it is our intention to give a short summary of the novel facts which have been elicited in connexion with etherization during the past month.

Apparatus and mode of inhalation.—The forms of apparatus invented for inhaling ether are already endless. The desideratum at present is to render them cheap and portable, without destroying their efficiency. The apparatus employed by Professor Simpson completely answers these purposes. (See our Report of the Med. Chir. Society, March 3d). Experience has shown that the

inhalation should be so conducted as to produce its full effect as soon as possible, in order to prevent or shorten the period of excitement. With this view a large volume of vapour should be inhaled from the first, the individual should not be disturbed, or the inhalation interrupted, and the ether should be pure.

It has been proved experimentally by Mr Young, cutler, Edinburgh, on his own person, before the Society of Arts, that so far from there being any danger of explosion during the inhalation, that flame applied to the mouth, and breathed upon, is immediately extinguished.

Physiological effects.—Numerous experiments have been performed on the lower animals by MM. Flourens, Serres, Gruby, Longet, Magendie and others. The same phenomena have for the most part been observed in them as in man. Stupification by ether constitutes a convenient mode of depriving animals of sensation, for experiments on the excito-motory system. If pushed too far, however, even this is affected, and death is occasioned. Different degrees of insensibility may be produced, and an action upon the brain proper alone, or combined with this upon the medulla oblongata, and spinal chord, be occasioned according to the extent to which inhalation is carried. According to M. Flourens, ether acts on the nervous centres in the following order :—First, on the cerebral hemisphere ; second, on the cerebellum ; third, on the spinal chord ; lastly on the medulla oblongata, destroying successively intelligence, regular movements, sensibility, and life. Dr Buchanan of Glasgow, having pointed out that the blood surcharged with ether is sent directly to the heart and brain, explains the evanescence of its action by comparatively pure blood from the lower regions of the body, succeeding it as soon as the inhalation is stopped. (Paper read to the Philosophical Society of Glasgow). The peculiar sensations experienced by individuals vary considerably in different cases.

Applications.—The removal of pain during surgical operations still constitutes the chief object of inhalation. Even this application of it, however, has caused perhaps less sensation than that of destroying the pains of child-birth, without interfering with the progress of labour. This fact, first ascertained by Professor Simpson, of Edinburgh, has been confirmed by Professor Paul Dubois of Paris, and subsequently by several others.¹

We are informed by Dr Simpson that latterly he has ascertained two important points with regard to the use of ether in midwifery. First, its action may be kept up for hours. In one case he had a patient placed for four, and in another for five hours and a half, under its influence before the child was born. When the patients awoke, about thirty or forty minutes after delivery, they were quite unconscious of the birth of their infants, and could scarcely at first be persuaded of the happy result. Both labours had been previously exceedingly tedious. One of the patients had child's head arrested at the brim, and after being above thirty-six hours in labour, was delivered by Dr S. with the long forceps. Second, the foetus in utero seems not to be deleteriously affected by even such prolonged etherization of the mother. In these two cases the action of the foetal heart was carefully watched by Dr S. with the stethoscope, and did not vary above ten or fifteen beats during the whole time of the etherization. Both children were born alive and well.

Ethereal inhalation has also been tried in several cases of facial neuralgia, inducing insensibility to the painful paroxysms, and sleep which could not otherwise be procured.

Another application has been made by M. Baudens to determine true from feigned diseases in the army. In one case, where curvature of the back was simulated, the deformity disappeared during the insensibility caused by ether, and the individual was led to confess the imposture. In another case, a suspected ankylosis of the hip joint was in the same way proved to be a reality.

¹ We observe that the paper of Professor Simpson, which we made great exertions to publish in our last number, has been translated entire in the *Union Medicale*, but we regret to say, without any acknowledgment of the source from whence it was originally derived.

Inconvenient effects have frequently resulted from the inhalation. Many of these will be found related by Professor Syme and Dr Roberts, in our report of the meetings of the Medico-Chirurgical Society of Edinburgh. Great excitement, cough with expectoration of pus, hemoptysis, and convulsions, during the inhalation, have been witnessed by ourselves. In some cases, erratic feelings, and even nymphomania, have been occasioned in females, in others hysterical symptoms, or those of depression or intense headache, which have continued several days. In our last number we noticed the occasional occurrence of alarming sinking, which required vigorous measures to restore the individual. In some cases, the individuals have been thrown into such a state of agitation as to render the performance of the operation impossible.

Fatal effects have become multiplied. In our last number, one fatal case was noticed, occurring in the Edinburgh Royal Infirmary. We are informed that there are just now two other cases in which the ether was given, dying of secondary purulent deposits in the same institution.¹ Is this result the effect of ether? An answer in the affirmative cannot be decidedly given, but, as we previously stated, all such cases require to be put on record. M. Jobert has brought forward two cases in which he considered death to be partly dependent on the ether. M. Roux has given another of tetanus, in which the patient never rallied from the stupefaction, and where death was decidedly accelerated by it. Mr Nunn, of Colchester, has recorded a case of lithotomy, which sunk without the patient having rallied from the operation; and Dr MacLagan has mentioned another, occurring in London after amputation of the thigh.

We observe in the Times, an account of an inquest at Grantham, in the County of Lincoln, in a case where an osteo-sarcomatous tumour was removed by Mr Robbs, surgeon, under the influence of ether. The patient never rallied from the operation, which was in no way severe or prolonged, and the jury found "That the deceased, Ann Parkinson, died from the effects of the vapour of ether, inhaled by her for the purpose of alleviating pain during the removal of a tumour from her left thigh, and not from the effect of the operation, or from any other cause." In the correctness of this verdict the surgeon himself, Mr Robbs, concurred.

Morbid Appearances.—The morbid appearances which have been found after death, caused by ether in animals, are similar to those observed in asphyxia, namely, fluidity of the blood, its collection in the right side of the heart and large veins, and engorgement of the internal viscera. In the fatal case of the Royal Infirmary there was found double pneumonia, bronchitis, and secondary purulent deposits in the joints. In the case of Mr Nunn, cerebral congestion, lungs engorged posteriorly, and uniform fluidity of the blood. In the case at Grantham there was no great congestion, but the blood was fluid throughout. The observations of Amussat and Lassaigne have shown that in every case the blood loses its power of coagulation, although with the exception of the presence of a minute dose of ether, its chemical principles are unchanged.

Claims to the Discovery.—The merit of discovering the application of etherization to removing pain in surgical operations, has been lately claimed by Dr Wells, of America. He states that he was led to the discovery by observing that individuals when in a state of great excitement, as during battle, or intoxication, never felt the pain of local injuries. He consequently caused the patient to inhale ether, and nitrous oxide gas in several cases, and found that they were thus insensible to the pain of surgical operations. He was led to prefer the nitrous oxide gas for this purpose, from its causing less injurious effects than ether. He communicated his discovery to Drs Morton and Jackson, who then received it with incredulity. He shortly after left America for Europe, and was much surprised on arriving at Paris to find that those gentlemen had propagated his ideas without any allusion to him.

Since writing the above we have been informed that Professor Syme has abandoned the use of ether in his surgical clinic.

¹ One of these has since expired.

BOOKS RECEIVED.

1. Medicines, their Uses and Mode of Administration, including a complete Conspectus of the three British Pharmacopœias, an Account of all the New Remedies, and an Appendix of Formulæ. By T. Moore Nelligan, M.D. Edinburgh, M.R.I.A., &c. Second Edition. 8vo. Dublin. 1847.
2. Observations on the History and Treatment of Dysentery, and its Combinations, with an Examination of their claims to a Contagious Character, and an Inquiry into the Source of Contagion in its Analogous Diseases, Angina, Erysipelas, Hospital Gangrene, and Puerperal Fever. By William Harty, M.D., &c. Second Edition. 8vo. Dublin. 1847.
3. On Tumours of the Uterus and its Appendages. (Jacksonian Prize Dissertation.) By Thomas Safford Lee, M.R.C.S.E., &c. 8vo. London. 1847.
4. On Indigestion and certain Bilious Disorders often conjoined with it, to which are added Short Notices on Diet, By George Chaplin Child, M.D., &c. 8vo. London. 1847.
5. Body and Soul, or Life, Mind, and Matter, considered as to their Peculiar Nature and Combined Condition in Living Things; with a view to render the Physiology of Life and Mind more easily understood by the general reader. Illustrated by Drawings. By George Redford, M.R.C.S.L. 8vo. London. 1847.
6. An Essay on the Tongue in Functional Derangement of the Stomach and Bowels, and on the Appropriate Treatment; also the Tongue's Aspect in Organic Disease of the Lungs and Heart, &c. By Edward Williams, M.D., Cantab. Second Edition. 8vo. London. 1846.
7. On Cataract, Artificial Pupil, and Strabismus. By F. H. Brett, M.D., F.R.C.S., &c. 8vo. London. 1847.
8. The London and Provincial Medical Directory. 1847. 12mo. London.
9. A Manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By T. Wharton Jones, F.R.S., &c. 12mo. London. 1847.
10. Lecture Introductory to a Course of Clinical Medicine, delivered in the Theatre of Queen's College, Birmingham, on Tuesday, December 1, 1846. By Samuel Wright, M.D., Edin. F.R.S.S.A., &c. 8vo. London. 1847.
11. Medical Statistics, their Force and Fallacies; a Lecture delivered in Park Street School of Medicine, November 4, 1846, introductory to the Course on the Theory and Practice of Physic. By James F. Duncan, A.M., M.B., &c. 8vo. Dublin. 1847.
12. Hassall's Microscopic Anatomy. Part 7.
13. An Inquiry into the Action of Mercury on the Living Body. By Joseph Swan. Third Edition. 8vo. London. 1847.
14. The Nature and Faculties of the Sympathetic Nerve. By Joseph Swan. 8vo. London. 1847.
15. On the Corrolation of Physical Forces; being the Substance of a Course of Lectures delivered in the London Institution in the year 1843. By W. R. Grove, Esq., M.A., F.R.S., &c. 8vo. London. 1847.
16. Experimental Researches on the Post Mortem Contractility of the Muscles, with Observations on the Reflex Theory. By Bennet Dowler, M.D. 8vo. New York. 1846.
17. On the Sanitary Condition of Newcastle-on-Tyne, and the Means necessary for its Improvement; being a Lecture delivered before the Literary and Philosophical Society of that town, Feb. 10th, 1847. By George Robinson, M.D., &c. 8vo. Newcastle. 1847.
18. Sopra l'Organo Elettrico del siluro Elettrico del nilo Comparato a quello della torpedine e del Gimnoto, &c. Di Filippo Pacini di Pistoja. 8vo. Bologna. 1846.
19. Report on the Progress of Ophthalmic Surgery. By W. R. Wilde, M.R., S.A., &c. (Extracted from the Dublin Quarterly Journal of Medical Science for February 1847.)
20. On the great prevalence of Venereal Diseases in Great Britain; showing the necessity of Additional Sanitary Laws to arrest their progress; a Probationary Essay, &c. By Alfred Hall, M.D., &c. 8vo. Glasgow. 1847.

TO CORRESPONDENTS.

Communications have been received from Dr Peddie, Dr Douglas Maclagan, Professor Pirrie of Aberdeen, and Sir George Ballingall.

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MAY 1847.

No. 11. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Extract of a Lecture on Punishments, delivered to the Students of Military Surgery in the University of Edinburgh, on the 23d of March 1847.* By Sir GEORGE BALLINGALL, Regius Professor of Military Surgery.

SUCH, gentlemen, are the general sentiments which I have for some years expressed in this place, upon corporal punishment; as regards the surgeon's duty in superintending its infliction, and in treating its consequences. If, upon the present occasion, I am induced to add anything of a more particular, of a more personal character, it is from a desire to state fully and unequivocally the result of my individual experience, as bearing upon a case which has recently been the subject of deep interest both to the profession and to the public.

You will readily suppose that I allude to the case of the soldier Frederick White, of the 7th Hussars, who died in the month of July last, in the Cavalry barracks at Hounslow, recently after having been subjected to corporal punishment. Upon the medical evidence given before the coroner's inquest on that case, I was induced to offer some remarks, which you will find in the "Monthly Journal of Medical Science" for October last. These remarks have called forth a reply from Mr Erasmus Wilson, published in the "Lancet" for October 31st, 1846; both of which papers I trust you will do me the favour to read. It is not my intention to occupy your time at present with a minute or detailed criticism on Mr Wilson's letter, but to notice some few points on which I have had the misfortune to be misunderstood. My opi-

nion as to the cause of this soldier's death is given in the following words: "I can only look upon this as a case of thoracic inflammation, *supervening from atmospheric changes*, in the case of an individual who had recently been subjected to corporal punishment,—not necessarily connected with that punishment; except in so far that I hold every man who may have undergone such punishment, *and who may in consequence have been confined to hospital*, to be in a condition which renders him more than usually susceptible of morbid influences, and particularly of those arising from atmospheric causes."

Here Mr Wilson seems to think I have made an admission that this man's death was distinctly the consequence of his punishment. But observe, gentlemen, the words upon which I have laid an emphasis, and which I shall take the liberty of printing in italics. Observe also that a man is not of necessity confined to hospital because he may have undergone a slight punishment, not even such a punishment as that inflicted upon the soldier White; and which, in former times, would have been considered a moderate one. It is the assumed connexion between punishment and pleurisy which I am disposed to question. It were altogether unfair to take Mr Wilson's evidence as given in the newspaper reports, or to say how far some of the expressions put into his mouth countenance the parallel which has been drawn between the effects of burns and of corporal punishment; but he is well aware of the relation which exists "between the skin and the internal organs," and how much this relation has been dwelt upon, as explaining the fatal result in the present case. Mr Wilson's own explanation of this result is distinctly given in the following words: "the pulpy condition of the muscles existing in close relation with the pleura, was the real cause of the pleuritis which was found on that side of the chest."

Now, it is the immediate connexion of the fatal pleuritis either with the state of the skin, or with the state of the muscles which, in my opinion, remains to be proved. If this is not the professional question at issue, I should be glad to know what that question is? And why this persevering attempt to ascribe to a peculiar—I had almost said a nondescript-state of the muscles of the back, those morbid appearances within the thorax, which are abundantly common where no such cause can exist? The concatenation of extraneous or accessory circumstances in this case—the soldier's trial—his punishment—his reception into the regimental hospital—the healing of his back—his subsequent death, and repeated dissections, have never been denied.

Mr Wilson then places me hypothetically before the coroner, and after having delivered my opinion as formerly expressed, supposes the following question to have been asked of me: "If the deceased had not been flogged, would he in your opinion have been alive at the present time?" To this I should at once have answered, "I can give no opinion on the subject. I cannot tell." A coroner's inquest is to me by no means so novel a scene as may be

supposed. I have been repeatedly a witness before that officer, and have never met with anything in the least degree puzzling or unpleasant; which I attribute to my having uniformly adhered to the following simple rules: to make my answers as brief and concise as possible, to avoid any "medical dissertations on the relative dependencies of predisposing, exciting, or proximate causes," to abide rigidly by the dictates of "common sense," and to eschew all professional refinements into which it were impossible for a jury to follow me.

Mr Wilson, in the course of his reply, enters again upon ground over which I have already professed my inability to follow him—the softening of the muscular tissue, analogous to the softening (ramollissement) of the brain. The latter is an affection with which we are all familiar; the former is to me altogether unknown. I have no inclination and no title to deny its existence, but I am entitled to say that after a period of upwards of forty years' service in hospitals, civil and military, I have never seen, and, until within these few months, never heard of such a morbid affection. I regret that the knowledge of such a degeneration of the muscular tissue, has come upon me at a late period of life, when many valuable opportunities of investigating its nature have passed away; and when the state of my eyesight, independently of other considerations, renders it now impossible for me to pursue with any advantage the "slim unravellings of minute anatomy." I have repeatedly seen the superficial muscles of the back twittering under the lash, and I know something of the rupture of the long muscles of the extremities; but I have a difficulty in conceiving how a muscle like the multifidus spinæ, peculiar in its structure, thickly covered by the superincumbent parts, and limited in its range of action, should be so powerfully affected as to lead to its rupture and subsequent degeneration. And here an important practical question presents itself. In cases of severe contusion it is not unfrequent for suppuration, and even sloughing, to go on in deep seated parts while the texture of the skin remains unbroken. But in a complicated injury of the superficial parts like that from flogging, consisting of laceration, contusion, and extravasation of blood, is it usual, *or is it known*, that such superficial parts recover themselves, and that this recovery goes on to a complete cicatrization of the skin, while such a morbid process as that described by Mr Wilson is going on below?

In opposition to my opinion of the infrequent connexion of corporal punishment, *as inflicted in our army*, with inflammation of the thorax, and in reply to my repeated demand for evidence of such connexion, I am referred to the testimony of Lord Hardinge, the present governor-general of India, to that of Kirekhoff, formerly a physician in the army of the Netherlands, and to the memorable case of sergeant Armstrong, as supporting Mr Wilson's belief, "that diseases of the thoracic viscera are far from being an uncommon result of corporal punishment." It so happens that

there is not a man in the British army, from right to left, for whom I entertain a more sincere respect than for Lord Hardinge, but upon a matter of professional opinion I shall not be expected to yield my judgment even to the matured experience of his lordship. But is Lord Hardinge's evidence upon this subject fully and fairly represented? I have looked over the "Blue Book" containing the "Report of the Commissioners for inquiring into the system of military punishments in the army," and there I find the following questions submitted to Major-General Sir Henry Hardinge, with the replies respectively annexed to them.

"5656. Are you at all acquainted with the discipline of any of the other armies of Europe, from having served with them?"

"No, except of the Portuguese army, of which I was the Deputy Quarter-Master-General from 1809 to 1813.

"5657. In the Portuguese army there are very severe punishments by strokes of the sword?"

"Having commanded five battalions of Portuguese in the Pyrenees, the result of my observation is, that the soldier, from his nature and character, is not so difficult to manage as the British soldier, and principally because he is much more sober than the British soldier; he has less personal resolution to resist authority; more submission from his previous habits as a peasant. Punishment was inflicted by a corporal seizing the culprit, and striking him with the flat of the sword upon the back. It was necessary to be done with the utmost caution, for it shook the chest so severely that sometimes consumption and lingering complaints were the consequence.

"5658. It did not leave any mark?"

"No, it bruised the body, and frequently led to spitting of blood and very serious complaints; and it was not calculated to have the same effect of deterring from crime that our system has, because being given with the clothes on, and the man not appearing to suffer much from it, if he had the resolution to conceal his suffering, which many firm men have, it had not the effect which our punishment has of deterring by the appearance of a more severe punishment."

Here it will be observed that Lord Hardinge is contrasting, morally and physically, two punishments of a very different description, that of the forcible blows with the flat of the sabre, as practised in the continental armies, with the cat-o'-nine-tails as employed in our own. It is of the former alone that the spitting of blood is said to be an occasional consequence—and this is an event which I confidently affirm that I have never observed as a sequel of the most severe punishments as inflicted in our service.

For the authority of Kirckhoff, to whom I had occasion to refer in the introductory part of the course, you are aware that I entertain all possible respect when treating of subjects with which he is personally conversant. He speaks of the "coup de baton" as productive of hæmoptysis; but in reference to corporal punishments, as inflicted in our army, his authority must go for very little.

Upon the latter subject he could have had little if any experience, infinitely less than what Lord Hardinge has had of the "*coup de plat de sabre*;" and no one who has had an opportunity of seeing the two punishments inflicted will, for a moment, look upon them as likely to be productive of the same results.

Of the case of sergeant Armstrong, whose life was sacrificed to the violence of his commanding officer, governor Wall, I am not at the present moment in possession of any perfect detail. He is said to have passed blood constantly after his punishment, both by urine and by stool; and the surgeon stated also *that he had an asthma from the extraordinary absorption of the blood*. It is altogether unnecessary for my present purpose to inquire how far "*the flogging occasioned disease of his lungs*," as stated by Mr Wilson, because, if my memory serves me, sergeant Armstrong was said to have been punished with *a rope an inch in diameter*. If this is correctly stated, it will be seen at once how completely it takes the case out of the category of punishments as usually inflicted in the British service, and how far it assimilates this case to those punishments spoken of by Lord Hardinge and by Kirekhoff.

I have now disposed of all the evidence adduced in support of Mr Wilson's position; and of the several analogies brought forward in illustration of the views of those from whom I differ as to the nature of White's case, it will be observed that there is not one of them which I can admit. The parallel between burns and flogging I stated, in my former paper, to have been, in my opinion, "*pushed much too far*;" the parallel between the ramollissement of the brain and a correspondent state of the muscular tissue is a point upon which I am unable to speak; and anything like a parallel between the punishment with the flat of the sabre, or with "*a rope an inch in diameter*" and the cat-o'-nine-tails, I altogether deny.

I come next to what was the principal object of my former communication, and what now becomes to me the most important object of this, the statement of my personal experience. Upon this, Mr Wilson observes, "*Sir George Ballingall's assertion, that in the two hundred cases above referred to, there had not been any prominent or dangerous symptoms of thoracic inflammation, is most disagreeably qualified by the adjectives prominent and dangerous*." Now, I beg to assure Mr Wilson that in making the above statement, I had no equivocation nor mental reservation in view, and that I had studiously and purposely understated both the extent and the result of my experience, as bearing on the question at issue. Mr Wilson goes on to ask, "*What was the proportion of thoracic disease of whatever kind? For what period after punishment were these men observed? Might they not, months after, nay, perhaps years, have languished with disease of the thoracic viscera, the seeds of which had been sown by the punishment to which they had been subjected?*"

These are most proper, most pertinent, and most legitimate

questions; and it is to me a source of regret that I am unable to give a more direct and specific answer. I can only state generally that I have served in four different battalions, and in three different quarters of the world. I was painfully reminded by an old brother officer, a few days ago, that there can be but few men living who have seen more corporal punishment than I have, or under a greater variety of circumstances. I have seen such punishments inflicted, both at sea and on shore, in the field and in quarters, in the cold of a severe English winter, and under the heat of a tropical sun. I have seen them inflicted by the powerful arm of a boatswain's mate, and by the tiny hand of a puny drummer, the number of lashes varying from one dozen with the heavy naval cat to six hundred with the less formidable instrument, used in the army; both of which are now in your hands. And, in reply to Mr Wilson's questions, I can only say that in all this variety of circumstances, I have not only seen no "prominent or dangerous symptoms of thoracic inflammation," but, so far as my recollection serves me, I have seen no such symptoms whatever. I say this with all the increased confidence which further reflection gives me; and I repeat that in no case under my own care has there been a direct or obvious connexion between punishment and pleurisy or carditis. There was no such connexion as to induce any soldier to attribute the occurrence of such diseases to a preceding punishment, so long as I remained in the regiment with him.

The mode of dressing punished men's backs, in this and other cold climates, during the war—a practice still in use—appears to me a very powerful argument against anything like a general or frequent connexion between punishment and pleurisy. This dressing consisted of a solution of the acetate of lead, with which the contused or broken surface was kept continually wet, by means of a pledget of cloth or charpie soaked in the solution; the patient's body linen, his sheets and bedding, being not unfrequently imbued with moisture; and this at all periods of the year.

In a matter of this grave importance, upon which I have expressed myself so strongly, it is a great comfort to know that my experience is by no means singular or isolated. I have looked into all the cases mentioned in Mr Marshall's recent work on military punishments. I have looked into those detailed in Hamilton's *Regimental Surgeon*, into a few that are noticed in the periodicals, medical or military, and into some manuscript cases in my own possession; and, singular as it may be, it does not appear in any of those cases, that life was either lost or endangered from the supervention of acute thoracic disease.

I have also been favoured in the course of the bygone winter with a voluntary and unsolicited statement of the experience of five medical officers of long standing in the public service, three of them holding the rank of Inspectors of hospitals, and all assuring me that their observation is coincident with my own.

The dangers have been, as formerly stated, from "profuse suppuration, sloughing, or hospital gangrene;" or as Mr Marshall has expressed it, "fever and sloughing of the back are the consequences of flogging most to be dreaded."

Fatal cases of acute inflammation within the chest from atmospheric changes (and to which men depressed and debilitated by confinement to hospital are particularly obnoxious) are, in this country, cases of every day occurrence; while, on the other hand, I trust I have been able to show that such complaints, as a consequence of punishment are, in our service, exceedingly rare, if not altogether unknown. That White's case was an example of the more frequent, not of the more rare occurrence, I am firmly persuaded; and I am bound to conclude that the only one of the five medical gentlemen examined in the case who entertains an opposite opinion, is equally sincere in his belief. Had any doubt existed in his mind, I must presume that he would have given to the surgeon more immediately concerned the benefit of that doubt. That he would have been slow to lend the weight of his testimony to the support of those who had evidently prejudged the question, while, on the other hand, that testimony was calculated to injure the character of a professional brother, to impair his usefulness, to expose him to public odium, and to destroy his peace of mind.

I would, gentlemen, most willingly forego the necessity of coming again before the public, in reference to the case upon which I have just been commenting. For professional controversies I have ever entertained but little respect, and the tardiness of my reply, upon the present occasion will, I trust, be admitted as some indication of the little taste I have for what frequently proves a most unprofitable waste of time. There are circumstances also in the present case which render any protracted discussion of it to me more than ordinarily disagreeable. I have found from experience, that it is difficult, in the eyes of many, to controvert the professional opinions of the Coroner and Mr Wilson, without being at the same time supposed to counteract their praiseworthy object.

Upon the propriety of abolishing corporal punishment in the army and navy, I have never permitted myself to enlarge in this place, being of opinion that it is a question not within my province; but I have elsewhere stated, many years ago, the result of my professional experience as to the unequal operation of this punishment on different individuals; and I have stated a fact which ought never to be absent from your recollection—that those who most deserve this punishment are often the least able to bear it. Trusting then to these statements for the vindication of my humanity, I go on to observe, that if I can hope to be of any use to you, it is by the accuracy of the professional opinions which I may deliver from this chair, and by being always prepared to defend them. I feel, at the same time, that I am not entitled to take advantage of my position here, to say any thing to you which I am

not prepared to say to the public. It is not then in the spirit of controversy, nor is it for the purpose of qualifying or retracting one syllable of my former statement that I again resort to the press. No, gentlemen, it is from a desire to repel something like an insinuation of *mala fides*, that I have been thus prolix and thus egotistical. If there is anything for which I have obtained or desired to obtain credit, in my intercourse with my pupils, it is for a candid statement of the results of my experience, and I am not willing to forego any character I may possess in this respect, now that I am looking forward to the termination of my professional life.

ARTICLE II.—*Remarks on Angular Curvature of the Spine.* By Dr PIRRIE, Regius Professor of Surgery in Marischal College and University of Aberdeen.

ANGULAR curvature may arise from one or other of the five following causes :—

1st, It may be the consequence of scrofulous caries of the spine. The bodies of the vertebrae, from their spongy texture, are peculiarly liable to this disease. It is unnecessary to trace the progress, or explain minutely the nature of the local changes which precede the occurrence of scrofulous caries. The first deviation from the healthy condition is, that part of the cancellated structure becomes preternaturally vascular; that at an early period the affected part becomes unusually soft from a deficient proportion of earthy matter, and that a thin fluid is deposited in the cancelli. These changes constitute the anatomical characters at an early period of the disease. As the disease advances, the bone becomes still softer, and, instead of a thin fluid a caseous substance is deposited in the cancelli. Sometimes the substance occupies only the cells, while the cancellous structure still remains; sometimes the cancellous structure of a part of the bone is removed, and its place occupied by the caseous substance, and sometimes the whole of the cancellated structure of a vertebra has been found to be absorbed, and caseous matter deposited in its stead. I have in my own collection a vertebra, the whole cancellated structure of which has been absorbed, and replaced by caseous matter retained in its place by an exceedingly thin shell of bone. This variety, in the quantity and extent of deposit, corresponds with what is observed in other bones affected with this disease. When the disease, for example, is situated at the joint ends of bones, the deposit is usually very limited; but in a long bone the same substance is sometimes found to occupy the whole of its interior. I have specimens in which the whole of the femur is occupied with this substance, contained within a very thin encasement, which is formed by the outer part of the original shell

of the bone. That an inflammatory process occurs in the progress of the disease all agree; but as to the nature of the morbid action of which the caseous substance is a result, there is a difference of opinion. Sir Benjamin Brodie, Lloyd, Rust, and others, regard the deposit as a product of inflammation, while many others consider it a result of a morbid action, different from inflammation.

From many facts which have been ascertained, there seems reason to conclude that in scrofulous constitutions, caseous deposits in certain textures are direct effects of inflammation, and may be arrested if the inflammation be subdued; but it seems equally certain from many observations, and from the history of many cases, that when the constitutional diathesis is very decided, they may take place wherever there is any congestion of blood, and even sometimes, where there is no trace whatever of any congestion, inflammation, or any disturbance of the circulation. In a practical point of view, this is not a matter of very great importance to determine, with reference to the caseous substance in this disease; for it is generally allowed that depletion has less control over scrofulous, than over common inflammation, that when adopted to any great extent in persons of a scrofulous diathesis, it is very injurious; and further, that even if the first deviation from a healthy condition were a consequence of a low grade of inflammation, it could scarcely be expected that the inflammation within the bone could be much affected by any extent of depletion, which it would be safe or judicious to institute. The tendency to this deposit is believed, in part at least, to depend on a peculiarity in the condition of the blood, which is unusually serous. When the blood is morbidly defective of fibrine, exudation of albuminous matter seems very apt to take place on the occurrence of local congestion, or inflammation; and in many instances it has been found, even where no trace whatever exists of any disturbance of circulation. I have, in my own collection, many specimens in which bones are almost entirely filled with the caseous deposit, where the outer encasement of the bone is very thin, and no trace whatever discoverable of increased vascularity, but quite the contrary. The diminution of vascularity, after the occurrence of deposit, has been remarked by others.

The deposition is succeeded by a low grade of inflammation of the bones and intervertebral substances, which ultimately terminates in caries; and, in consequence of destruction of the bodies of the vertebræ, as well as of the intervertebral substances, the sound part above the portion destroyed falls forward on the part below, and thus gives rise to angular curvature. The commencement of the destruction is almost invariably towards the anterior parts of the bodies of the vertebræ, but sometimes, though very rarely, on their posterior aspect; in this case the parts which naturally furnish attachment to the arches are destroyed, and a separation takes place between them and the remaining portions of the bodies of the

vertebræ. In my own collection there is a particularly interesting preparation illustrative of this fact. In this preparation, destruction has taken place of the posterior surfaces of the bodies of certain vertebræ, so that the arches and transverse processes are detached, the anterior portions of the bodies remaining entire. There is no breach of continuity along the front of the column, but there is a large chasm in its posterior portion, communicating with the vertebral canal. There was no curvature in this case; for the anterior parts of the vertebræ being entire, there could not have been angular curvature with the projecting angle backwards, nor could there have been angular curvature with the projection forwards; for, though the arches were detached from the bodies, the spinous processes and the arches remained impacted together, and prevented the spine from presenting a concavity along its posterior aspect. There is considerable variety as to the relative position of the two extremities of the diseased portion; sometimes the upper part falling forward, comes to be directly in contact with the under part; sometimes it is otherwise; but this will depend upon the number of the bodies of the vertebræ destroyed, and the extent of the destruction backwards. As the bodies of the vertebræ and the intervertebral substances form the part of the column which supports the superincumbent weight, when a chasm or gap is produced in front, the superincumbent weight sends the upper part forward, producing incurvation in front of the spine, and projections behind of the spinous processes, and, from the incurvation being of an angular form, the disease is denominated angular curvature. The spinal cord traverses the spinal canal, having its sheath in contact with the arches, and not the bodies of the vertebræ; that is to say, it directs its course along the greater curve. In most cases of decidedly marked angular curvature, complete or partial interruption of the functions of the spinal cord comes on sooner or later: the portion of the cord at the affected part of the spine is as far as possible from the bodies in front of it; but still the bones do in some cases press upon the cord, and interrupt its functions, especially when the destruction has been rapid, and the curve is very abrupt. This cause of pressure and consequent paralysis may not be permanent. The projecting portions of bone may ultimately become smoothed down by absorption, and in some cases this, no doubt, explains the discontinuance of the paralysis. The functions of the cord may also be interrupted by pressure upon the membranes, produced by matter formed in the progress of the disease. These are the causes, external to the membranes, which may occasion pressure on the cord and interrupt the due performance of its functions. The same interruption, however, is often produced by results of inflammation, with which the membranes or the cord, or sometimes both, become affected; and in such cases there is usually found on dissection, a thickened condition of the membranes, or the formation of matter between or

within them, or a preternaturally injected state of the cord, or a softened condition of it, which may vary in degree from a slight deviation from the healthy appearance, to that state in which it is almost entirely fluid. Paralysis, however, has been known to exist where none of the above conditions, nor any morbid alteration of structure, was discovered on dissection; and Stafford and others suppose that it is sometimes to be referred to longitudinal compressure of the anterior portion of the medulla. "The effect of angular curvation," Mr Stafford remarks, "is the bending of the medulla and its membranes; which, as I have before stated, causes a greater or less degree of paralysis of the parts below, which, however, does not always arise from pressure of the bones upon it, but from the bending of its own substance, producing pressure upon itself; for instance, the anterior portion of the medulla would be compressed, while the posterior portion or back of it would be stretched."

It may be regarded as a general law, that of the two functions, voluntary motion and sensation, the former is almost invariably first removed, and the latter first restored; the rationale of which is, that the anterior columns of the spinal cord, which give off the anterior roots of the nerves, by which they preside over voluntary motion, are nearer to the seat of the disease, and therefore more exposed to pressure than the posterior columns which give off the roots presiding over sensation. Although pressure on the spinal cord is usual in angular curvature, it is surprising how nature, even in some cases where the destruction is very great, and the deviation from the natural form of the spine very remarkable, yet continues to maintain the integrity of the vertebral canal, so as to preserve the cord from being compressed. Of many examples of this remarkable fact I shall only refer to the following: Mr Stafford mentions the case of a child in whom, though the bodies of six dorsal vertebræ were destroyed, and the angle of the curve was very acute, paralysis did not occur. Professor Cruveilhier gives the particulars of a case in which the bodies of five dorsal vertebræ were completely destroyed; where the fifth dorsal vertebra rested on the eleventh, the two becoming ankylosed, and the angle was very acute; and yet the medulla was preserved free from pressure. I have at present under my care a girl ten years of age, in whose case the bodies of the fourth, fifth, sixth, and seventh dorsal vertebræ must be entirely removed; an abscess is formed, and is pointing about the middle of the seventh rib; and judging from the appearance of the spine behind, the parts above and below the seat of the disease must be for a short distance almost parallel with one another, so abrupt is the curve; and still the patient is as yet quite free from any symptoms of compression of the spinal cord. The only explanation given of such cases is, that the process of destruction must have been very slow, and the deviation from the natural form extremely gradual. Mr Stafford remarks, "The completeness and incompleteness also of the symptoms very much depends upon the rapidity with

which the curve takes place. If the destruction of the bodies of the vertebræ has been very quickly effected, the paraplegia is usually more complete; but if it has been slow in its progress, the paralysis below is often very imperfect."

In the progress of the disease, a collection of purulent matter forms (as in scrofulous caries in other bones), constituting what in some instances has been denominated lumbar or psoas abscess, but more properly spinal abscess. The appearance of abscess is an exceedingly unpromising symptom; indeed, it is generally regarded as fatal. The period at which suppuration takes place differs greatly in different examples of this disease; in some it occurs at an early period, in others not for many months, or even for a longer period; and indeed an abscess is sometimes retained for years by the neighbouring parts becoming thickened and matted together. As a general law it may be stated, that the suppuration is much earlier when the curvature is induced by scrofulous caries than when it arises from ulceration of the cartilages. The situations in which such collections point are various. When the abscess is connected with the cervical vertebræ, it may present itself among the muscles on the side of the neck (which is most usual), or it may be directed forwards, and burst into the pharynx, of which I have seen one example. When the abscess is connected with the dorsal division of the spine, it may present itself along the lateral part of the thorax, of which I have already mentioned one example, or it may point at other aspects of the parietes of the thorax by running along some of the intercostal spaces; but usually the matter follows the course of the posterior mediastinum, escapes under the diaphragm, and then descending along the course of the psoas muscle points in the groin. Sometimes an abscess in the dorsal division forms a large swelling on the side of the abdomen, the matter descending between the peritoneum and the other structures which constitute the abdominal parietes; and I had an opportunity of making a dissection in a case of curvature from scrofulous caries of the 7th, 8th, and 9th dorsal vertebræ, in which a spinal abscess, after following the course first of the mediastinum, and then of the psoas magnus, burst at last into the under extremity of the sigmoid flexure of the colon. When the abscess is connected with caries of the lumbar vertebræ, it most commonly points in the groin near the insertions of the psoas magnus and iliacus internus muscles, or somewhere in the thigh below Poupart's ligament. In some instances, the abscess has shown itself in the loins, and in others in the nates, but these are comparatively very rare occurrences. The only favourable termination which can take place in this disease is anchylosis, to which, however, the soft condition of the bones is by no means favourable.

II. Angular curvature may result from ulceration of the intervertebral substances,—the disease thence extending to the bodies of the vertebræ.

III. It may arise from chronic inflammation commencing in the

vertebræ, followed by ulceration and caries; the vertebræ being like other bones, liable to inflammation. Such inflammation may be of a common character causing common caries; or of a scrofulous character producing scrofulous caries already referred to, or of a rheumatic character, which may end in what has been denominated rheumatic caries. Ulceration of the intervertebral cartilages is believed to be an early consequence of inflammation of the bodies of the vertebræ.

IV. It may originate in the softening and absorption of a vertebra without the production of any chasm. I have in my collection two very striking specimens of this condition, in both of which the curve is very abrupt, and yet there is no chasm or any trace of inflammation discoverable; and I have had under my care for two years a girl with angular curvature in the middle of the dorsal region, which case, from the entire absence throughout of any symptom whatever, except the deviation from the natural form of the spine and the consequent alteration of the form of the chest, I consider to be one of this nature.

V. According to some surgeons, it may arise from inflammation of the investing membrane of the vertebræ. Mr Tuson, after referring to some of the more common causes of angular projection, says, "From observations I have made, and numerous cases which have come under my care, I have formed a conclusion, that it may also arise from inflammation commencing in the membrane that covers the upper and lower surfaces of the bodies of the vertebræ, connecting the intervertebral substances with the bone, and then extending itself into that substance and cancellated structure."

Symptoms.—These are divided into two stages:—

1st, Before curvature;

2d, During and after its formation. In the first stage, the patient complains of a sense of weakness at the part of the back affected, and of weariness, and is unwilling to take exercise. After some time, a dull heavy pain is experienced during and after exercise. The pain, which at first is slight, becomes afterwards more severe, and is increased by exercise, by any sudden jerk communicated to the spine, and generally by percussion, and relieved by the horizontal position. From irritation of the spinal cord, there is often an altered sensation or occasional feeling of pain in the lower extremities; occasionally spasmodic twitches of the muscles, and at times spasmodic rigidity of the limbs. In the progress of the disease, and before the second stage, the muscles become wasted and lose the power of readily obeying the will, in consequence of which the patient cannot easily and quickly place his foot exactly on the spot where he may wish to place it; and when he walks, he is very apt to trip. There is coldness of the extremities, and fulness and tightness in the epigastric region; patients in this state often complain of a feeling of chilliness, and they will usually be found to exhibit symptoms of a feeble condition of the general health. In the second

stage there are found the local symptoms of the first stage, often in an increased degree, and together with these, curvature, at first slight, but gradually increasing, and in form very abrupt, a peculiarity most important to be remembered, as it is one of the best guides for distinguishing angular curvature from some curvatures which depend on a different condition, and in which, although the spine is bent backwards, the curve, instead of being abrupt and angular, is gradual, resembling a segment of a circle. There is angular projection posteriorly of the spinous processes, and the spine is bent forwards in consequence of destruction of the bodies of the vertebræ which support the superincumbent weight. As the disease advances, the patient usually loses all sensation and motion in the parts below the point of pressure on the spinal cord; in short, he becomes affected with a paraplegia; the power of motion being generally first lost, and last restored, as explained in describing the state of the parts. The patient loses control over the bladder and the sphincter of the rectum, so that the urine and fæces pass off involuntarily; or if the pressure on the cord be very great, there may be complete retention of the urine. Slight difficulty of passing urine has often been found to be an early symptom. The easy performance of the functions of the digestive and respiratory organs is more or less interrupted; the bowels are generally constipated; and the patient complains of a sense of fulness and tightness at his stomach, and in many cases of pain. These conditions of the organs of digestion and respiration are supposed to be produced through the connexion between the spinal and ganglionic nerves; and this supposition is probably correct; but there can be no doubt that the function of respiration is often rendered difficult in curvature in some situations by pressure on the intercostal nerves, which are thereby rendered incapable of calling into action the intercostal muscles (over which they preside) to assist in enlarging the chest in inspiration. To this point we shall afterwards have occasion to refer. In the progress of the disease abscess may appear, the situation where it shows itself varying (as formerly stated) according to the situation of the disease; its appearance is usually attended with increased derangement of the general health, and under the continuance of the discharge and irritation, hectic fever to a very urgent extent supervenes, and the bowels or some other internal organs becoming affected, death ensues. Such are in general the symptoms of angular curvature, but they differ considerably in different cases, particularly as to the local symptoms, which in some instances are as above described, while in others there is no pain nor tenderness—the only local symptom being the deformity. If the deformity depend on mere absorption, there may be no pain, but it is an important fact which should always be kept in view, that scrofulous caries of the spine, as is mentioned by some authors, and as I have several times found, may run its course, and yet the patient may not experience any pain or any local symptom beyond a sense of weakness and weariness of the affected

part. So little pain is there, that in many instances the curve has been formed before the real seat of the disease has been suspected. In scrofulous caries there is generally less pain than when the disease depends on ulceration of the cartilages, but suppuration usually takes place earlier. These differences—the history of the case, and the presence or absence of a scrofulous diathesis may assist us in forming some opinion, but we have no sure guide enabling us in the living body to arrive at a certain knowledge, whether the disease has originated in scrofulous caries of bones, or in ulceration of intervertebral cartilages. The symptoms of curvature vary also according to the part of the spine affected. When it occurs in the lumbar region, and more especially towards its lower part, it is not usual, unless the disease be to a great extent, to find the altered sensations and spasmodic twitches in the early stage, or the paraplegia in the latter, as the great size and the form of the bodies render the contents of the canal less liable to pressure. When the curvature is in the dorsal region, the projection, owing to the great length of the spinous processes, becomes very marked, and the chest considerably altered in shape, being flattened laterally, the ribs projecting backwards, following the vertebræ with which they are connected, and the sternum appearing too far forwards. There is at times palpitation, and in some instances difficulty in breathing, occasioned by compression of the intercostal nerves, or of the spinal cord above their origins, but this symptom is not so frequent when the curvature is in the dorsal, as when it is in the cervical region. When it is in the cervical region, the head is bent forwards, the prominences behind are not large, unless the seventh cervical vertebra be involved, and the respiration is difficult. In the early stage there may be pains and twitches of the muscles of the upper extremities as well as of other parts inferior to the seat of the disease. Sometimes when the disease is in the cervical region, especially in its upper part, it proves fatal by producing effusion in the brain, and in some cases the odontoid process having lost in the progress of the disease, the attachments of the ligaments which keep it in its proper situation, presses on the spinal cord, and thereby causes immediate death, the seat of the pressure being higher up than the origins either of the phrenic or of the intercostal nerves which preside over the actions of the muscles of respiration. Having thus given a short account of the symptoms of angular curvature of the spine generally, and the additional symptoms peculiar to curvatures in particular situations, we shall next refer very briefly to the treatment.

Treatment.—Any attempt to remove the curvature would be most injudicious. Ankylosis is the only favourable termination to be hoped for, and therefore the object aimed at in treatment should be to place the patient under the circumstances most likely to conduce to that result. With that view it is indispensable, first, to keep the patient in a recumbent position, so as to remove from

the diseased parts the pressure of the superimposed weight, and to preserve the parts as much as possible in a state of perfect quietude in that position, and secondly to use all means, judicious and available in the circumstances of the case, for maintaining the general health. In some cases local remedies are highly beneficial.

That it is necessary to confine the patient to the recumbent position, does not admit of question, for it is evident that the superimposed weight pressing on the diseased part, must not only act as a source of irritation, but must also tend to increase the curvature; and it can only be effectually removed by placing the body in the horizontal position. And that any effort which nature may make to effect ankylosis may not be defeated, it is further necessary that the parts should as much as possible be prevented from being moved upon each other. Another advantage which results from preserving the parts at perfect rest in the horizontal position, is that the removal of the irritation caused by the superincumbent weight from the diseased parts, diminishes the danger of the formation of abscess, which (as formerly stated) is a most unpromising occurrence, and must induce the gloomiest apprehensions as to the ultimate results. One of the best means for fulfilling the above indication is to place the patient in the supine position on Earle's bed, which, besides other advantages rendering it very convenient for this part of the treatment, allows the relative position of the trunk and limbs with regard to each other to be slightly changed, without any risk of moving the diseased parts on each other. The slight change thus allowed renders the confinement to the recumbent position much less irksome than it otherwise would be. As an additional precaution for preserving the diseased parts from any movement, it is in many instances advisable to apply splints on each side of the spine. The splints in such cases must suit the shape of the parts to which they are applied. Some recommend the patient to be placed in the supine posture, but others give the preference to the prone position, because in that attitude the superimposed weight is more effectually removed, there is no risk of heat and irritation from pressure, it favours the return of venous blood from the bodies of the vertebræ, and the approach of paralysis it is thought may be deferred, as matter will gravitate away from the medulla. This position is also very convenient when local applications are necessary, and in some cases the curve is so abrupt, that it is almost impossible with every precaution to keep the patient long on his back without producing irritation of the soft parts. But notwithstanding the above mentioned advantages, I confess I have in the majority of cases found treatment conducted in the supine posture more satisfactory, and chiefly I believe from the diseased parts being more easily preserved in a state approaching to complete immunity from motion, than is possible when the treatment is conducted with the patient in the prone position, in which I have often been annoyed by find-

ing it impossible to prevent the patient from moving the upper part of the spine by frequently moving the head and shoulders; and as far as my experience goes, the supine position is preferred by patients. Rest, however, of the diseased parts, and the recumbent position, whether the body be prone or supine, are of the utmost importance from the very commencement of the disease until a cure is effected by ankylosis. When it is believed that ankylosis has taken place, and the patient is allowed to resume the erect attitude, it is a judicious precaution to employ for some time an apparatus such as that generally known by the name of the spine supporter, for removing the superincumbent weight.

The maintenance of the general health is another and equally important indication, but unfortunately some of the best means for fulfilling it are not compatible with the rest and the recumbent position which form essential parts of judicious treatment. The great importance of attending to the general health must be evident, when it is considered under what circumstances caseous deposits are most apt to take place in bone. In individuals of a scrofulous diathesis, insufficient nutriment or clothing, living in a damp and cold or impure atmosphere, want of exposure to the sun's rays, mental depression, and any cause of debility acting permanently or habitually for a length of time, have unquestionably an influence in exciting caseous deposits in bone as well as in other textures. These considerations suggest the necessity, especially in scrofulous cases, of a generous digestible diet, living in a pure dry atmosphere (the bracing air of the sea-side being often highly beneficial), exposure to the light of the sun, the cultivation of pleasing trains of thought, the proper regulation of the digestive apparatus, and the use of such remedies as from the particular circumstances of the case are best calculated to improve the general health. The tonic medicines generally found most useful are the preparations of iron. But as far as medicine is concerned, I believe the most important point is to have recourse to those remedies which, from the particular circumstances of the case, seem most likely to preserve the digestive organs in a proper state. Besides these means, in some cases local remedies are necessary; but their employment will depend on the nature of the cause of the disease. If the disease depend upon scrofulous caries of the vertebræ, or upon softening with absorption without ulceration or caries, depletion would be worse than useless, and would tend to weaken the patient. In these cases, the surgeon must content himself with advising the recumbent position, maintaining the diseased parts in a state of quietude, and prescribing all suitable means for preserving the general health. In scrofulous caries, benefit will often be found to accrue from the early and very cautious employment of counter-irritation along with the treatment here alluded to. If the curve arise from inflammation of the bodies of the vertebræ, of their investing membrane, or of the interverte-

bral cartilages, slight local depletion by leeching or cupping at the commencement of the disease, and afterwards counter-irritation, are known to be highly beneficial. The repeated application of small pieces of blister to each side of the vertebral column at the seat of the disease has been found well suited for children, and caustic issues for adults. Of the various means for producing counter-irritation, Mr Pott gave the preference to caustic issues. I have used them very frequently, and in some instances with gratifying results. It is improper to produce a great discharge, which would tend to weaken the patient, and besides, the long continuance of a profuse discharge and irritation might induce hectic fever. If abscesses form, the issues should be discontinued. Mr Pott, whose valuable works contain many cases of disease of the spine, attended with paralysis, successfully treated by the application of counter-irritants, was the first who pointed out to the profession the results of such practice, and many have since followed it with equal success. About six months ago I ceased to attend a patient, in whose case I was much gratified with the result of using caustic issues, together with rest and the recumbent posture; and I refer to the case as a striking example of the complete restoration of sensation and the power of motion of the lower limbs, after they had been for eighteen months considerably affected, and for eleven months entirely lost. The patient, who was thirty years of age, had suffered for a considerable time from pain and a sense of weakness in his back; he afterwards became affected with an angular curve in the middle of the dorsal region, and after the usual train of symptoms, ultimately lost all sensation and power of motion of the limbs. The power of motion was first lost, and sensation was first restored; but the loss of both sensation and motion was as complete as possible. When I first saw him, he had lost the use of his limbs for several months, and the curve was rather abrupt, and involved three of the dorsal vertebræ. After treatment had been employed for four months, the sensibility of the limbs began to return, and ultimately it became perfectly natural, and this was followed by a restoration of the power of motion; and for six months the patient has been in every respect perfectly well, without any remains of the disease except the curve, where, I am sure ankylosis has taken place. The case is interesting, as affording a remarkable confirmation of the fact, that the functions of the spinal cord may be for a long period completely suspended, and yet afterwards perfectly restored.

ARTICLE III.—*On Spinal Apoplexy.* By ALEXANDER PEDDIE, M.D., Fellow of the Royal College of Physicians, Edinburgh, Medical Officer to the Minto House Hospital and Dispensary, &c.

(Read before the Medico-Chirurgical Society.)

MORBID affections of the spinal cord and of its investing membranes, more especially those denominated Spinal Irritation, Spinal Meningitis, and Myelitis are by no means uncommon; but hemorrhage into its substance or theca,—a disease usually distinguished by the name of Spinal Apoplexy—or the *Hématomyélie* of the French, appears to be of comparatively rare occurrence. That this affection should be so infrequent, may perhaps be attributed to the strength of the vertebral column, and its adaptation for the diffusion of shocks sustained by strains and blows; but it must at the same time be kept in view that there is nothing in the anatomical structure, or functions of the cord and membranes, to exempt them from the evil effects of a congested or hurried circulation, and consequently from the occurrence of extravasations. The reverse of this is the case, as Ludwig,¹ J. P. Frank,² Ollivier,³ Hutin,⁴ and others have explained, chiefly from a consideration of the arrangement of the spinal vessels, the absence of a valvular apparatus, and the influence of respiration on the motion of the blood,—as in the case of the brain itself. Besides, although the spinal cord is not the seat of intellect, it is apparently much influenced by mental acts and emotions, and powerfully so by sensations; and hence it is, that in fever and many other maladies,—more especially when the brain is the organ chiefly affected, its medullary prolongation is apt likewise to be implicated, to a greater or less extent, either by direct extension or sympathetic action. As the medulla spinalis, therefore, is peculiarly liable to congestion and inflammation, analogy would lead us to expect that, like the brain, it would frequently be the seat of hemorrhagic effusion. Perhaps the supposed difficulty of laying open the spinal canal in *post mortem* examinations, may have prevented a discovery of the real cause of many cases of sudden death, and of paralytic and convulsive disorders; but, be this as it may, the records of medicine have as yet furnished only a few examples of spinal apoplexy; and much evidently requires to be known before a correct diagnosis of this serious lesion can be attained, and before well defined physiological and pathological inferences can be drawn from its varied and interesting phenomena. Such information would also tend to throw light on many of the most difficult and important

¹ *Adversaria Medico-Practica.* Leipsick, 1770. Tom. i., p. 730.

² *De Vertebralis Columnæ in Morbis dignitate oratio Academica.* Paviæ, 1791. Tom. xi., an. 1792.

³ *Traité des Maladies de la Moelle Epinière.* 3 Edit., Tome ii.

⁴ *Nouvelle Bibliothèque Médicale.* Tome i., p. 162

questions connected with the functions of the cerebro-spinal axis ; and it is therefore evidently desirable that no contribution should be withheld which is likely to extend the limits of knowledge on this subject, even although it should be by the production of an isolated case.

At present it is proposed, first, to state the case which suggested this paper, then to make some observations on its symptoms and *post mortem* appearances, and lastly, to give an analysis of the facts on record regarding the disease called Spinal Apoplexy.

CASE.

Mr O., aged thirty years. Was married a year previous to his illness. Habits temperate and active. Was very fond of the amusements of cricket and angling ; at the former of which he excelled all his companions in dexterity, and the exertion which he made on many occasions was so great as to be followed by extreme exhaustion. His friends were disposed to ascribe the ill health which subsequently occurred to these fatigues, and to frequent exposure to the night air, and long continued immersion of the lower parts of the body in water while on fishing excursions. He had not, however, been engaged in the former amusement for many months previously ; and as to the latter, although angling about a week prior to his illness, he had not then been subjected to much fatigue, nor had he stood at all in the water.

The more probable occasion of his illness was a fall sustained when playing at quoits ten days previously, which hurt his loins a good deal at the time. Be that as it may, for some days previous to his seizure, he was observed to be languid and easily fatigued, a circumstance, however, which did not excite particular attention, as he was subject to bilious ailments. When he awoke on the morning of the 11th July 1843, he found that he had unconsciously voided urine in bed ; and on attempting to pass it voluntarily he was unable to do so. Uneasiness from retention, however, was not felt at this time ; and after breakfast he went into town to business as usual, without any other complaint. In the afternoon he returned home complaining of continued inability to void urine, and of having felt considerable weakness in his limbs, especially when ascending his own stair. The distension of the bladder by this time must have been great, but was not much complained of. After dinner, however, it became insupportable ; and in the evening a surgeon was sent for, by whom he was bled, and then relieved by the catheter. Next morning the retention of urine was still complete ; and in attempting to rise to the night-stool he dropped suddenly on his knees, deprived of muscular power and sensibility in all the parts below the middle of the dorsal region. In this paraplegic condition he remained until death, a period of two years and seven months.

On the day when these paraplegic symptoms were first manifested, he was twice relieved of urine by the catheter, and had some laxative medicine ; and on the 13th July was ordered to be cupped on the dorsal region by the late Drs Davidson and Abercrombie, both of whom saw him in consultation at this time, and frequently afterwards. From this period until the 13th of February 1844, when he was placed under my care, the treatment chiefly consisted in the application of a succession of blisters along the spinal column, and the use of much purgative medicine and the sulphate of quinine. The catheter was employed for a few days at first, and then discontinued.

For the first two months the inferior extremities were quite supple, and could easily be placed in any desired position, and that too without occasioning pain in the back. Indeed, during this period, he had little suffering of any kind, but afterwards contractions and spasms gradually occurred, and these had reached their greatest degree of strength and severity before I saw him—seven months after the attack. His condition at this period was as follows:—Complete paralysis of the lower half of the body, both in regard of motion and sensibility; no curvature of the spine, but slight tenderness on pressure immediately above the sixth dorsal vertebra. Motor power and sensibility of the upper extremities quite unaffected, and respiration unrestrained; a girded or corded sensation at times felt in the epigastric region. Inferior extremities could not be extended beyond an angle at the knee of about seventy-five degrees, but often drawn up on the abdomen by spasms, or could be placed there by a little management. When the limbs were not carefully adjusted in certain positions, or when the soles of the feet were tickled, tremors, twitchings, and contractions of the muscles and limbs were produced, sometimes to a violent extent; and on these occasions pain was felt in the middle of the dorsal region, and nowhere else. The temperature of the lower extremities was in no degree diminished, but was perhaps rather above the healthy standard; and sometimes a copious perspiration bedewed the surface.

The urine was passed involuntarily, but at intervals of from half an hour to an hour, and in considerable quantities at a time. The urine itself was highly alkaline, strongly ammoniacal in odour, turbid when newly passed, and afterwards depositing muco-purulent matter of thick and ropy consistence; and priapism frequently existed to a troublesome extent, more especially when the catheter was attempted to be passed. The fæces were always passed involuntarily, and for the most part contained a large quantity of bile, and were attended with the discharge of much flatus. The action of the bowels had always however to be assisted by purgatives. Over both trochanters were enormous ulcerations with undermined edges, from which afterwards small exfoliations were repeatedly removed; and there were also small ulcerations on other parts of the limbs occasioned by pressure or any slight irritation. The appetite was in general good, excepting when under bilious attacks, to which he was occasionally subject; his mind was calm and collected, and his deportment patient. During my attendance, he was seen repeatedly in consultation with Dr Davidson and Professor Syme. The use of the catheter was resumed, but had to be discontinued on account of the spasms which attended the introduction of it. He was placed on the hydrostatic bed to obviate the injurious effects of pressure; the actual cautery was applied along the dorsal region; and a great variety of alterative, tonic, and other remedies, among which may be noticed galvanism, were tried. These means, although of no avail in restoring nervous power, were decidedly useful in protracting existence, and in enabling him to bear up against, and to rally from many severe attacks of bilious fever which reduced him to the lowest degree of weakness. During the intervals of freedom from such attacks, the sores, which were closing up remarkably, sloughed over again to a great extent.

During the summer of 1845, he was removed to the country, and was frequently carried into the open air. He then enjoyed remarkable health, being stronger than at any other period since the commencement of his illness, and became stout in body, although the extremities remained comparatively emaciated. His bowels, although torpid, were more easily managed; the urine had less deposit; and when the limbs were placed in certain positions,

he was able at times with a long and urgent effort of volition to move the great toes. This movement, however, at best was very slight, and only noticeable on looking steadily at the parts.

On returning, however, to town in October, he began to fall off in appetite, and to be more frequently troubled with biliary accumulations; and on the 8th February 1846, a severe bilious fever commenced, attended by erythematous inflammation spreading from a small sore on one of his toes to the lower parts of the abdomen. This erythema faded in a few days, producing only slight sloughing action in the ulcerations of the hip, yet his strength gradually declined; and in spite of all the efforts made to sustain it, he died on the evening of the 22d.

The principal peculiarity of his last illness appeared to be the extremely slow process of death. For the last twenty-four hours he was without a pulse appreciable at the wrist, the respiration was slow, the surface of the body cool, and the mind collected and tranquil.

Thirty-nine hours after death, an autopsy was kindly conducted by Dr Bennett. There were also present, Dr John Scott, Dr John Brown, Mr Winget, and myself. Dr Davidson was unavoidably prevented from attending.

The *Vertebral Canal* having been carefully opened, the bones were found to be perfectly healthy, as also were the membranes of the medulla, within which no effusion existed. Corresponding to the sixth dorsal vertebra, the cord presented a greenish black colour to the extent of nearly two inches, and was found to be similarly tinged throughout when a section of it was made. From about one inch above to about five inches below this discoloured portion, extending even to within an inch and a half of the *cauda equina*, the cord was softened, attenuated, and semi-transparent,—altogether deprived of its usual colour, density, and consistence.

On after careful microscopic examination, Dr Bennett favoured me with the following statement of appearances. “The softened and discoloured portion of the spinal cord contained numerous compound granular corpuscles, the vessels were very numerous, and coated externally with granules, in which corpuscles might be seen embedded. The white nervous matter was also greatly broken up forming round globules with double lines. On inspecting the cord externally near the pia mater, several minute black lines might be observed, resembling vessels. These, on examination, were found to consist of pigmentary masses, varying in size, situated in the neurilemma, surrounding bundles of nervous tubes.”

In the *Thorax*, the morbid appearances were, here and there, small patches of black carbonaceous deposit in the pleura pulmonalis, in the substance of the lungs, and bronchial glands; very general emphysema of the anterior surface and margins of the lungs; and the heart considerably loaded with fat.

In the *Abdomen*, the parietes presented a very great quantity of fat, as also did the omenta (and indeed the whole body); on the peritoneal lining were several small melanotic-like patches; and attached to the larger omentum were a few tumours, the largest the size of a walnut, and like little spleens. The liver was enormously enlarged, about double the ordinary size, and of a greenish colour throughout. Both kidneys were almost entirely disorganized, presenting abscesses of different sizes communicating with the pelvis of each, and containing besides pus, numerous phosphatic calculi of various forms and sizes from that of a pin head to a large pea or small bean. Several culculi, likewise, were sticking in the ureters, which were much dilated and thickened.

A number were contained in the bladder, one being the size of a pigeon's egg, and another about the size of a small bean, was impacted in the prostatic portion of the urethra.

The bladder contained, besides the calculi, a quantity of thick dirty pink fluid; and its surface was generally thickened and roughened at parts, as if by chemical action.

After a careful examination of all the cases of spinal apoplexy which I can find on record, none have been met with in which the *morbid appearances* resemble those of the instance above detailed. There are examples of extravasation of liquid blood alone or mixed with serum into the spinal canal, of blood infiltrated into the substance of the cord, of ecchymosed patches from recent effusion, of coagula circumscribed and diffused, of coagula partially absorbed, of a coagulum surrounded by a distinct filamentous false membrane, and of a dense empty cystic cavity of long standing. Nevertheless, I am inclined to consider the remarkable, circumscribed, dark green coloured portion of the cord in this instance, as affording at once an evidence of the existence, and marking out the locality of a sanguineous extravasation or infiltration. A cyst is not invariably found in old cerebral apoplexies; and the presence of such cannot be considered as an essential character of an apoplectic seizure at a distant date, since there are only two instances recorded, in which the subjects survived an extravasation more than a few weeks, the one of which is reported by Cruveilhier, and the other by Bright (*vide table, case 6 (1st attack), and 15*); and in both the effusion was external to the medulla. In the case now under consideration, although there might have been an adventitious membrane formed and absorbed during the long period of two years and seven months, without leaving any traces of its existence, yet it is more probable that the blood was at first infiltrated and imbibed into the substance of the cord—breaking up the white nervous tubes as the microscope demonstrated; and that subsequently, under the influence of the inflammatory process which destroyed so large a portion of the medulla, its colouring matter had undergone an alteration, which produced the greenish hue, and the tissue affected in the course of time, became the seat of pigmentary deposition.

According to Lallemand,¹ and numerous other pathologists, the inflammatory softening of cerebral matter attendant upon sudden congestion in the venous capillaries, occasions a change in colour of various shades of red and brown; and observers in the same field, among whom I may mention Dr Bennett² as not the least distinguished, have shown that softening surrounding extravasated blood assumes various tinges of red, port wine lees, brown, ochre, and green, according to the distance of time which elapses from the period of the accident. Rostan, in particular, notices with

¹ *Recherches Anat. Path. sur l'Encephale*, 1er; lettre, p. 74.

² *Inflammation of the Nervous Centres*, p. 76.

regard to the last hue, "that a greenish yellow colour is ordinarily found in the case where the ramollissement *est consécutif à une ancienne attaque d'apoplexie*, and that it is the centre of the softening which presents this colour."¹ Analogy, therefore, would lead us to the same conclusions with regard to the changes in the medulla spinalis. When in connexion with the morbid appearances of the cord, the discolouration so well defined and so distinctly marked from the rest of the softened portion, we view the history and symptoms of Mr O.'s case, there will appear the strongest reasons for considering that primarily an apoplectic seizure had occurred,—and from symptoms alone both Dr Abercrombie and Dr Davidson were disposed to view the case in this light. The suddenness of the invasion and the completeness of the paraplegia, without being attended with febrile action, obscure pains in the back or extremities, spasms or tetanic contractions, prove that the case was not one of *myelitis* at first; and the absence also at this period of the same symptoms, but more especially of pain in the dorsal region when subjected to pressure or motion, shows indisputably that no *meningitis* existed. We do not doubt, therefore, that the case at its commencement was apoplectic; and although it may be objected that Cruveilhier,² Grisolle³ and others, have remarked that pain of an acute rheumatic character is one of the distinguishing signs of an apoplectic spinal extravasation, yet it must be kept in view that acute pain is not invariably present; that the inference is drawn from a very few cases only; and that analogy with cerebral apoplexies will not permit such a rigid deduction. The most probable explanation of the absence of pain in the back, in Mr O.'s case, prior to or about the time when the bladder and limbs became affected, is, that the extravasation was not so great in extent as to excite irritation of the membranes from simple pressure; and that there was no serious laceration of parts; but that it occurred in the grey substance of the cord, separating rather than tearing the fibres, gradually infiltrating the tissue of a limited portion even to saturation—if I may use the term, and entirely and consentaneously destroying the functions of both the anterior and posterior columns.

Thus, while the symptoms did not indicate that the apoplectic seizure was either preceded or accompanied by inflammatory softening of the medulla, the occurrence of contractions and tetanic spasms in the paralysed limbs afforded positive evidence that this change was subsequently in progress; for it seems well established that these symptoms are the characteristic and diagnostic marks of this

¹ Recherches sur le Ramollissement du Cerveau, sec. ed. p. 158.

² Anatomie Pathologique, tome 1er, art. Apoplexie de la Moelle Epinière, iij. e Livrais. p. 6.

³ Traité Elementaire et Pratique de Pathologie Interne, Tome 1er, p. 653.

action going on, either in cerebral or spinal medullary substance.¹

It was remarkable, however, that this lesion did not take place sooner; for during two months there was complete paralytic suppleness of the extremities before convulsive twitchings of the muscles occurred, and before any degree of pain was felt in the upper part of the dorsal region; and several months more elapsed before these symptoms reached their maximum of intensity.

Having stated my reasons for considering the above case as an instance of spinal apoplexy, I would now make some remarks on the various symptoms and changes which occurred in its progress, and discuss their interesting physiological and pathological relations, did not the space permitted for this communication debar me from attempting more than a brief notice of some of the most important of its phenomena.

The case presents a very remarkable instance of the effect which stimuli applied to the surface of the body produce on muscles of paralysed parts when the integrity of the spinal cord is interrupted by disease. The phenomena occasioned under such circumstances, and the analogous results shown in the inferior animals on sections being made of the medulla, and even when decapitation is performed,² have attracted the notice of Sir Charles Bell, Magendie, Van Deen, Stilling, Dr Marshall Hall, Müller, Volkmann and other eminent physiologists, and led to much ingenious and interesting speculation. To Dr Hall in particular belongs the merit of pointing out satisfactorily *the Reflex functions of the spinal cord*,³ and its capacity for dispensing motor power independently of volition. In the instance under consideration, while so large a portion of the cord, about eight inches, was to all appearance as disqualified for the reception and discharge of sensory and motor influence, as if it had been removed from its place, the most sudden and energetic contractions were produced by gentle tickling of the soles of the feet, without communicating any impression to the mind. This effect proves the independence of the spinal functions under such circum-

¹ Dr Hughes Bennett in an analysis of twenty-six cases of cerebral and spinal softening, satisfactorily shews—"that the occurrence of contraction is a more frequent symptom of inflammatory softening than many suppose."
—Inflammation of Nervous Centres, p. 29.

² See experiments of Van Deen in "Traité et Découvertes sur la Physiologie de la Moelle Epinière," Leide 1841;—and of Stilling "Untersuchungen über die Functionem des Rückenmarks und der Nerven," Leipzig 1842. Also an interesting account of the effects produced by decapitation of the land salamander,—*Salamander Maculata*, and of frogs. Müller's Physiology, translated by Dr Baly, vol. i. p. 303.

³ Transactions of Medico-Chirurgical Society of London, vol. xxii. xxiii. and xxiv. also, in treatise "On the Diseases and Derangements of the Nervous System," and more lately, "New Memoir on True Spinal Marrow, and its Anatomy," &c.

stances; and supports the inference which Dr Budd in his "Contributions to the Pathology of the Spinal Cord,"¹ draws from some interesting cases of paraplegia, that such muscular movements *vary in extent and force, inversely with the degree of voluntary power possessed by the afflicted limbs.*

It may be interesting here to notice that the priapism, so readily excited by the stimulus of the catheter, is not merely an example of the reflex power exerted independently of an emotional impulse or sensation, but is also a proof of the influence which is thus exercised over a decidedly organic function, namely, that of vascular turgescence.²

But the chief interest of this case, as connected with the functions of the spinal cord, and the theory of reflex power, seems to consist in the following fact. When the patient was moved in bed, unless care and force were employed by his attendants, very powerful contractions were induced in the extremities, the legs flexing forcibly on the thighs, and the thighs on the abdomen, and then a little pain was felt in the upper part of the dorsal region corresponding to the lowest portion of healthy cord in connexion with the sensorium. Now, here appears to be an instance of what might be called a compound or double reflex action. First, the impression is made on the surface, and conveyed along the sensory or *afferent* nerves to the cord, which it affects without any sensation appreciable by the mind, and from thence it is reflected through the motor or *efferent* nerves to the muscles, occasioning contractions. But now having arrived at this stage, how are we to account for the rest of the process, namely, the return to the cord of the impression produced by the contractions, through the same class of nerves which conducted the first impression (the stimulus), and the transmission of it through a large segment of disorganised medullary substance, to the first healthy portion in the spinal track, there becoming the object of sensation and consciousness.

The point at issue is an interesting and important one, and can only be accounted for in one of the two following ways : either the eight inches of diseased cord, though disqualified for being the residence of sensory power, might yet act as a medium of conduction to an unusually powerful impression, some filaments qualified to transmit nervous influence to some extent still remaining ; or the impression might be communicated through the inosculating filaments known to exist between the spinal nerves and those of the sympathetic system, and thus form a supplementary chain of conduction—a byeway route of sensation in the time of nature's need.³

¹ Transac. Med.-Chir. Soc. of Lond., vol. xxii. p. 185.

² Ibid, p. 176 : also Müller's Physiology, vol. i. p. 225, for proof that erection is caused solely by vascular turgescence, and vol. ii. p. 1483.

³ Although decidedly inclining to the first method of viewing the transmission of sensation in such cases, I shall give the argument for the second explanation, as is well stated by Dr Copland, in his "Dictionary of Practical

Of course, also, by either of these explanations must be tried the phenomena observed near the close of Mr O.'s life, namely, the ability to execute a distinctly noticeable movement of the great toes. This could only be done at times, and in general there was a considerable interval between the effort and the effect, the determination of the will, and the transmission of its mandate to the extremities. An accumulation of pathological facts such as these now communicated, will, it is trusted, ere long make this difficult and interesting subject more intelligible.

Whether or not the free nervous communications just alluded to, between the medulla, the spinal ganglia, and the great sympathetic, even become endowed with powers not originally possessed, or become new channels of sensation and volition in extraordinary circumstances, in this case, doubtless, their ordinary functions were much quickened in power for the work of secretion and nutrition. These functions were no doubt to a considerable extent of an abnormal character, as evinced by the large growth of the liver, and the increase of its secretion, the great quantity of fat found in the abdominal parietes, omenta, and under the skin—even of the inferior

Medicine"—article "Paralysis." He says, in speaking of those cases of injury to large portions of the cord, which apparently disqualifies it for ordinary functions:—"When we recollect that communicating branches run between the ganglionated or posterior roots of the nerves, and the great sympathetic on each side; that ganglial nerves may be traced in their course from the sympathetic into the spinal ganglia and cord on the one hand, and from the latter into the sympathetic and ganglia on the other, we cannot but infer, not only that sensation may be transmitted, or more correctly, that impressions on the surface may be conveyed to the brain, so as to excite consciousness, by a different route than that of the spinal cord, especially under circumstances of gradual change in the cord, rendering it ultimately incapable of discharging this function, and that this other route is through the sympathetic nerves, and their communications with the posterior roots of the nerves and spinal medulla. The indirect character of this channel may appear an argument to some against the accuracy of this inference; but we know that in cases of obstruction to the usual channels of circulation is the vascular system, very circuitous courses are developed in order to preserve an organ or limb, and the nervous system presents many points of analogy with that system, especially a transmission of sensation from the periphery of the body, and from the several organs and structures to the more central nervous masses, and a similar circulation or return of nervous agency in the form of motion and determinate muscular contraction. The analogy may be further pursued, but the several points are so obvious that they require not even enumeration in this place. Moreover, it should be considered, that in respect of sensations excited in any of the abdominal or other viscera, it is very doubtful whether the spinal cord is the channel by which the impressions or changes in the viscera are transmitted to the brain, or whether the sympathetic nerves and communicating branches between the ganglia are the courses which are pursued. Indeed there appears little doubt of the latter being the actual channel of conveyance for impressions on or changes in the viscera, especially those of digestion and assimilation, are as vividly and as rapidly conveyed to the brain, and made objects of consciousness in cases of injury, or even of complete division of the cord, as in sound health."

—Vol. iii. part i. p. 37.

extremities, and the formation of the splenetic bodies found in the abdomen; yet it must be remembered how decidedly he rallied from the prostration of repeated fever; how his body renewed its stoutness; and healthful granulation and cicatrization again and again repaired the ulceration over the trochanters. It was certainly astonishing that with such a diminution of healthful nervous energy, life was sustained so long.

I shall now endeavour to compress into as narrow a compass as possible, the present extent of our knowledge regarding spinal apoplexies. In attempting to do this considerable difficulty is experienced from the information on the subject being much scattered in our medical literature; yet I believe that I have succeeded in gathering together all the cases of spinal apoplexy on record; and those, for the sake of brevity and the more ready perception of inference, are now presented in a tabular form.

From this table I have excluded altogether extravasations in the cord and its theca when occasioned by accident, such as fractures and dislocations of the vertebræ, and blows or strains so violent as immediately to lacerate the vertebral contents—cases, such as have been reported by Morgagni,¹ Sir Everard Home,² Chevalier,³ Payen,⁴ Brodie,⁵ Howship,⁶ and others. I have, also, for manifest reasons excluded instances of sanguinous effusion into the spinal canal—the fluid having forced its way from a rupture in the brain itself; and have also omitted to note any case of simple serous effusion, analogous to those to which, when occurring in the cerebral cavity, the name of serous apoplexy has been applied. I have therefore limited the selection of cases, strictly to spontaneous hemorrhage of the medulla and its membranes. But in the table now presented I have included extravasation of the *medulla oblongata*; for although that part presides over a special function, namely, respiration, although in it decussation commences, and although it does not lie in the vertebral canal, it must be regarded as the cerebral portion of the cord, and consequently must have a place in the arrangement.

Hemorrhage of the *annular protuberance*, however, is not so classified, for although M. Ollivier has arranged such cases under the general title of *Hæmatomyélie ou Apoplexie de la Moelle Epinière*, this portion of the cerebro-spinal system bears neither an anatomical nor physiological resemblance to the medulla spinalis. As some, however, may approve of Ollivier's arrangement, I may mention in general, from a survey of the cases reported by himself,

¹ De Sedibus et Causis Morb. Epist., 54, art. 25.

² Philosophical Transactions, May 1814.

³ Transact. Medico-Chirurg. Soc. of London, vol. iii.

⁴ Essai sur l'Encephalite Thèse de Paris, 1826, p. 21.

⁵ Transac. Medico-Chir. Soc. of Lond., vol. xx. p. 147.

⁶ Discrimination and Appearances of Surgical Disease, p. 77.

TABULAR VIEW OF ALL THE CASES OF SPINAL APOPLEXY YET PUBLISHED.
(To Face Page 828.)

No. of Case.	Sex and Age.	Supposed Cause.	Symptoms.	Duration of Illness.	Seat and extent of the Extravasation.	Other Morbid Appearances.	Authority.
1	m. adult	Not mentioned.	Considered as apoplectic, but mental faculties unimpaired.	Not given.	<i>Spinal sheath</i> ; a large quantity.		<i>Duvernoy</i> , Hist. de l'Acad. des Sc. tome ii. p. 47. Année 1688.
2	m. 61	A long journey.	Pain along the whole spine, specially followed by paraplegia incontinence of urine and faeces. Died while the physician sent for was talking to him.	A few hours.	<i>Spinal sheath</i> ; extensive,—all below 2d dorsal vertebra, and substance of cord broken up.		<i>Gaultier de Claubry</i> , Journal Gén. de Méd. 1808.
3	f. 14	Not mentioned.	Pain of head and back in lumbar region, aggravated by sitting up, and attended with sickness and fever for five days; then sudden increase of pain, and convulsions lasting for five or six hours.	5 days.	<i>Spinal sheath</i> , in lumbar region, filled with blood not uniform in tint, and imperfectly coagulated—as if extravasation had occurred first at the commencement of the illness, and then to a greater extent when the convulsions took place.		<i>Chevalier</i> , Transac. Médico-Chir. Soc. of Lond. vol. iii. p. 103.
4	— 7 days	Unknown.	Refused suck for two days, and cried frequently; afterwards, convulsions for two days.	4 days.	<i>Between Bones and Membranes</i> , in cervical region; a firm coagulum.		<i>Abercrombie</i> , Dis. of Brain and Spinal Cord. 1828, p. 362.
5	m. 70	Previous cerebral apoplexies; was bent and feeble.	Was found dead in bed.	(?) few hours.	<i>Grey substance</i> .—One extravasation size of a pea, between origin of 6th and 6th cerv. nerves, and another the size of a filbert on a level with the 4th dorsal nerves, destroying both white and grey substance. A little surrounding softening, and considerable general vascularity.	Membranes of brain highly injected. Small superficial softening in posterior part of left hemisphere. In each of the corpora striata, were slight cysts about the size of an almond, containing a little yellow fluid.	<i>Hutlin</i> , Nouvelle Bibliothèque Médicale, tome 1er, année 1828, p. 170.
6	m. 32 1st attack 37 2d attack	Unknown.	Acute pain in neck, and constraint in moving left arm and leg. Recovered in three months. Acute pain over third and fourth cerv. vert. with stiffness of neck; then pain in both extremities for ten or twelve days; complete palsy of sensibility and motion in trunk and extremities, with exception of right shoulder, in which were sharp pains. Muscular contractions; involuntary excretions; mind tranquil; sloughing over sacrum, grumous vomiting and slow death.	Nearly 5 years after the first attack, or 40 days after the second seizure.	<i>Grey substance</i> ; three distinct extravasations; 1st, strongly encysted, size of an almond, corresponding to origin of 4th, 5th, and 6th cerv. nerves of left side, raising the posterior fibres, probably of four years date; 2d, a yellow patch, covering whole length of grey substance, of perhaps twenty or thirty days date; 3d, coagulated blood filling the whole length of the canal formed by the white substance.		<i>Cruveilhier</i> , Anat. Path. tome 1er, iii. livraison, et planche vi.
7	m. 29	Not mentioned.	Shivering, pains along the vertebral column and loins originating in lumbar region. Right leg nearly completely palsied in motion but not in sensibility. Loss of sensation but not of motion in left side, with paralysis of rectum and bladder. Mind clear and tranquil. Large eschars over sacrum and trochanters. Slow death.	34 days.	<i>Grey substance</i> , in right side, at origin of last dorsal nerves, to extent of 2½ inches. Infiltration also of fluid blood into grey substance of right side, from the inferior part of the crural bulb nearly to the dorsal region. A very considerable extent of softening.	Abscesses of kidneys; and the ureters and bladder ulcerated.	<i>Monod</i> , Bulletin de la Soc. Anatomique. No. xviii. p. 349.
8	f. old	Encephaloid disease of brain.	Ordinary symptoms of cerebral apoplexy. Died as if asphyxiated.	Immediate.	<i>Grey substance of the medulla oblongata</i> —three small extravasations.	Encephaloid disease of brain.	<i>Ollivier</i> , Traité des Maladies de la Moelle Epinière, iii ed. Tome ii. p. 139.
9	f. 64	Long continued bad health, hysteria, and deafness.	Ordinary symptoms of cerebral apoplexy; uttered a cry, leant against a wall, and fell down asphyxiated.	Immediate.	<i>Grey substance of the medulla oblongata</i> , a clot about the size of a nut. A great quantity of bloody serum filled the canal.	Great engorgement of the vessels of the brain.	<i>Ollivier</i> , p. 140.
10	m. 55	Unknown.	Fell down suddenly with epileptic movements in the extremities, in which sensibility was preserved; foamed at the mouth; could not speak. Respiration at first restrained, soon became embarrassed and stertorous; and general paralysis ensued.	2 or 3 hours.	<i>Grey substance of medulla oblongata</i> ; at posterior part occupying all its length. A part ruptured, and blood escaped into 4th ventricle of the brain.		<i>Bonilland</i> , Jour. Hebdomadaire. Tome ii. 1829.
11	f. adult	Syphilitic caries of 3d cerv. vert.	Difficulty and pain in moving neck; watchfulness; quick pulse. On 3d day, severe pain and tetanic contraction of muscles of neck; feebleness of upper extremities. 6th day, palsy of left arm; convulsions of all the limbs; difficulty of respiration, delirium; and then general paralysis.	8 days.	<i>Under pia mater</i> —surrounding cervical portions of cord was a coagulum of dark blood. The blood also had insinuated itself a little way along the cervical nerves of left side. Extravasation extended to base of brain. Dorsal and lumbar portion of cord was firm, and of a red colour.		<i>Leprieux</i> , Arch. Génér. de Méd. Année 1830.
12	m. 20	Exposed to the heat of the sun.	While walking experienced great feebleness, and acute pain in the neck. Fell down suddenly paralysed in lower half of body,—equally in sensibility as in motion; and died on the 3d day with symptoms of asphyxia.	3 days.	<i>No examination</i> , but Ollivier (t. ii, p. 190) considers the case, beyond doubt, as one of extravasation in the <i>grey substance</i> of cervical region, destroying it, the blood afterwards infiltrating towards the medulla oblongata.		<i>Colling</i> , Archiv. Gen. de Méd. Fevrier 1836. Tome x. p. 198.
13	m. 12	Jerk 10 months previously from a cord thrown round the neck while swinging.	After a lapse of some months, became stiff in the neck, weak in the limbs, and inactive. Ten months after the injury there was paraplegia of the lower extremities, which progressively extended to the upper; and then, four days before death, he was suddenly seized with pain in the back.	A few days.	<i>Between bones and membranes</i> , a large quantity, partly fluid and partly coagulated; originating apparently from about the second or third cerv. vert., and extending downwards below the fourth dorsal vert. <i>No mention of state of cord.</i>		<i>Houshiep</i> , Observ. in Surgery and Anat., p. 115. Also in "Discrimination of Surgical Disease," p. 79.
14	m. 40	Unknown.	Sudden acute pain between shoulders, continuing for about a fortnight. Three days before death had lancinating pains in back of neck; and then followed dorsal pains and complete paralysis of arms and legs, with loss of sensation in the latter, but not in the former. Intelligence unaffected. Slow death.	20 days.	<i>Grey substance</i> , a dark clot, the size of an almond, between shoulder blades. A little lower down were other small clots. Cord softened to extent of six inches, and yellowish coloured opposite the largest extravasation; membranes reddish bluish to extent of three inches, and with slight adhesions.		<i>Grisolle</i> , Jour. Hebdomadaire. Année 1836. p. 32.
15	m. 43	14 years of bad health; from exposure at sea, rheumatism, & dyspepsia.	Mind and speech a little affected; slight hemiplegia of left side, attended with pains in head and middle of back, feverishness, and alvine disorder, and gradually becoming a case of paraplegia. About two months before death, paraplegia was general over trunk and extremities. Sloughing of nates. Slow death, respiration surviving all the other functions, and the features assuming a placid and intelligent aspect.	1 year	<i>Under pia mater</i> but external to the cord, enclosed in an adventitious membrane were the red and broken remains of a coagulum. It corresponded to the first dorsal vert., and compressed the cord. Membranes at the part vascular, and contained a quantity of reddish serum, but there was no disorganization of the cord.		<i>Stroud</i> , Bright's Medical Reports. Vol. ii. p. 339.
16	m. 30	Frequent biliary derangement; strumous constitution; strain of back 10 days previously.	Languor, retention of urine, and soon afterwards (within a few hours), complete paraplegia of all the parts below the middle of the dorsal region, alike of sensibility and motion, and incontinence of urine and faeces. Two months after seizure spasms and tetanic contractions began, with occasional pain in the upper part of the dorsal region. These continued until death, with occasional bilious feverish attacks. Sloughing over the trochanters. Mind clear and tranquil to the last. Process of death slow.	2 years and 7 months.	<i>Substance of cord</i> , corresponding to the sixth dorsal vertebra, and to the extent of two inches was a dark green discolouration, tinging the cord throughout. To the extent of about one inch above, and about five inches below the discoloured portion, the cord was much attenuated and softened. Membranes perfectly healthy.	Liver much enlarged and engorged. Abscesses and calculi in the kidneys. Ureters dilated and thickened, also containing calculi, as did the bladder, which was likewise ulcerated. Abnormal fatty nutrition and melanotic-like deposits about omenta, &c.	The case detailed in this communication.

by Serres,¹ Cruveilhier,² Cheyne³ and others, that extravasation in this situation appears to be much more frequent than in the spinal cord, contrary too, from what might have been expected considering the density of texture; that its seat is in the grey substance, sometimes circumscribed—from the size of a nut to that of a pouch-like bulging out of the whole protuberance, but in nearly an equal proportion of cases, producing rupture, and spreading into some part of the brain, or into the medulla oblongata—as it did in one instance; that its subjects are commonly old people, and males; that, with age, debility of constitution seems to be the most common predisposing causes; that the attack is sudden, and a fatal result nearly immediate, although in a few cases there is time for complaint of giddiness and sickness, without the ability of speech; and that the progress of the lesion is distinguished by insensibility, with stertorous breathing of the pipe-blowing character, complete paraplegia (in one instance, however, the cross effect was observed) alternating or intermitting with epilepti-form convulsions, and death,⁴ as if from asphyxia, within a few hours from the period of seizure. The most marked diagnostic signs of apoplexy in this situation, therefore, appear to be a sudden invasion with loss of speech, insensibility, paraplegia alternating with epileptic movements, and an overwhelming of the respiratory function, which, however, appears to be principally occasioned by pressure on the medulla oblongata.

It is to be regretted that some of the sixteen cases of spontaneous spinal extravasation given in the accompanying table, are not reported by their respective authorities, with the precision which would have been desirable for correct analysis; but notwithstanding these faults, the data given appear to warrant the following inferences.

1st, Spinal apoplexy occurs at all periods of life, but is least frequent in infancy, and most in the middle aged.

2d, In the largest proportion of cases, males are the subjects of it.

3d, Its progress to a fatal termination is in general rapid; almost immediate when the medulla oblongata is its seat: a few hours or days when it occurs high up in the column, or the quantity effused is great; but life is sometimes protracted when it is to a limited extent in the lower part of the cervical or in the dorsal regions (cases 6, 1st attack, 15, 16), for in the first instance, the patient survived the extravasation five years, in the second, one year, and in the third, two years and seven months.

¹ *Annuaire Medico-Chirurg. des Hôpitaux*, p. 351, &c.

² *Dict. Med. et Chirurg. prat.* tome iii., art. "Apoplexie," p. 239.

³ *Cases of Apoplexy and Lethargy*, p. 102, &c.

⁴ If the extravasation is to a small extent and without lacerating, but merely separating the fibres, life may be prolonged and absorption take place. Vide *Cases of Serres*, also *Ollivier*, p. 160-166.

4th, Its situation and extent is various. Sometimes it occurs between the bones and membranes, (cases 4, 13), or between the membranes, (cases 1, 2, 3), or under the pia mater, but external to the cord, (cases 11, 15), or in the grey substance as most commonly happens, (cases 5, 6, 7, 8, 9, 10, 14, 16). It is of comparative rarity in the cranial portion of the cord, which appears remarkable when the frequency of extravasation in the annular protuberance is considered; it is of nearly equal frequency in the cervical and dorsal regions; and is least common in the lumbar region. The blood is occasionally mixed with serum, sometimes pure and fluid, but generally coagulated; sometimes it is diffused over a large extent of surface, sometimes circumscribed, assuming the form of small defined clots. These clots are sometimes destitute of any cystic formation, even after the lapse of twenty or thirty-four days, (cases 7, 14), in other instances they appear to have been surrounded by a well-formed adventitious membrane, (cases 6, 15); and in the first of these cases, at an interval of four or five years, the cyst was found empty, and in the second, were contained only the broken remains of a coagulum. Sometimes the blood is found infiltrated in the median line of the cord, or in one of its two halves, or through its entire thickness, merely separating the medullary fibres; but in other instances a portion, (case 5), or even the whole cord, (case 2), both white and grey substance, may be completely broken up. In one case (6, *2d attack*), we have an example of ecchymosis after an interval of twenty or thirty days, yellow coloured, extending along the whole length of the cord; and in another case (16) an instance at the distance of two years and seven months, of a dark green discoloration from some change in the colouring matter of the blood.

5th, The causes of spinal extravasation both predisposing and exciting, are imperfectly known: the most probable, however, of the predisposing causes are, a strumous and rheumatic diathesis, long continued dyspeptic derangement, and the previous occurrence of cerebral apoplectic seizures, or the existence of organic disease of the brain; and the most probable of the exciting causes are, over exertion, fatigue, and strains affecting the vertebral column.

6th, The premonitory symptoms are neither well marked nor invariable. The most ordinary general indications, appear to be headache, languor, and debility; and the most common local signs, are various degrees of pain corresponding to the part where the extravasation is about to occur, or along the course of the spinal column; stiffness of the neck, and pains in the arms, when the cervical region is the part affected; feebleness of the legs, and tendency to sickness on the erect posture being assumed; and difficult micturition, when the dorsal and lumbar regions are implicated.

7th, The matured symptoms are usually, but not always, a sudden invasion or increase of pain—but without any acceleration of pulse, corresponding to the seat of the extravasation, suddenly followed by paraplegia, sometimes with convulsions; and when

death does not result within a short period, spasmodic contractions, sloughing of the nates or other parts, and the usual symptoms of paraplegia from inflammatory softening of the cord occur.

8th, The *pain* felt is at one point of the spine only, when the extravasation is limited in extent, (cases 6, 12 (?), 14, 15), but along the whole of the column when the effusion is more general (cases 2, 7, 13). It is most acute when the extravasation is external to the cord, producing by pressure irritation of the membranes (cases 2, 3, 4, 6); it becomes extinct when the cord is compressed, and its functions annihilated (cases 2, 6, 7, 12 (?), 14, 15); and is absent altogether when the extravasation takes place gradually in the grey substance, without lacerating the nervous filaments, or subjecting the membranes to pressure (case 16).

9th, The *paralysis* invariably occurs to some extent, and affects all the parts supplied by the spinal nerves below the seat of the extravasated blood. It may assume the form of *hemiplegia* when a small extravasation, by compressing a portion of the cord on one side, enfeebles or abolishes altogether its motor and sensitive functions (cases 6 (*first attack*), 15);¹ and when this occurs, a *direct* effect is produced—a term used in contradistinction to that of a *cross* effect, which is invariably observed in cerebral apoplexies. The precise extent, too, in which the anterior and posterior columns of the cord may be ruptured or compressed, relative differences are observed in regard of sensibility and motion in the limbs of the same, and of opposite sides of the body, producing what might be called—notwithstanding the seeming contradiction of the term, a *hemiparaplegia*. Very interesting examples of this variety of paralysis are presented in cases 6, 7, and 14. But, as may be supposed, from the small bulk of the cord, and the proximity of the roots of the different spinal nerves to each other, the most common result of an extravasation is paraplegia, affecting equally the motor and sensory nerves, and both sides of the body consentaneously; and this also will account for the easy transition of a hemiplegic case to one of paraplegia. Along with paralysis of the inferior extremities, the rectum and bladder are likewise deprived of voluntary power; and it is worthy of remark, that the state of the latter organs generally afford the first indication of the approach of paraplegia.

10th, The *sensorium* is quite unaffected in apoplexy of the vertebral portion of the cord; but *insensibility* is an almost immediate result when extravasation occurs in the medulla oblongata

¹ In noticing this case Dr Bright remarks, “that the propagation of excitement from the left column of the spinal cord to the right hemisphere of the brain, furnishes an interesting illustration of an occurrence which usually takes place in the opposite order of succession, and affords additional evidence that the corresponding halves of the central mass of the nervous system decussate in the medulla oblongata.” At the time of seizure this patient’s mind and speech were a little affected, and all the muscles of the left side of the body. On examination after death, the brain was sound.—Medical Reports, vol. ii. p. 339, &c.

(cases 8, 9, and 10); and the same effect may be expected when an effusion in the spinal canal reaches so high as to subject this part of the cord to pressure—as was probably the action in case 12.

11th, *Respiration* is not affected in apoplexy of the lower half of the cervical portion of the cord, for although the intercostal muscles, and the muscles of expiration are paralysed, the diaphragm carries on the work. When, however, the extravasation is in the medulla oblongata, the respiratory function is immediately affected, and death by asphyxia speedily ensues (cases 8, 9, and 10); and this result, too, is likely to take place in the affection of any part of the cord above the origin of the phrenic nerve (case 11 (?).

12th, *Convulsions* may occur when no inflammatory action has been present (cases 3 and 4), and appear to originate from reflected cerebral irritation—such as occurs in the course of many non-inflammatory affections.

13th, *Muscular contractions, spasmodic twitchings, and tetanic rigidities* are consecutive to the apoplectic seizure (cases 6 and 16), and must be regarded as signs of various degrees of inflammatory softening of the cord.

14th, *Meningitis and myelitis* have in several instances occurred subsequently to extravasation (cases 7, 14, 15, and 16) either conjointly (case 14), or independently of each other (cases 5, 7, 15, and 16). There is no evidence, however, that meningitis has ever been antecedent to an extravasation, although myelitis has probably been so (case 5).

15th, In cases of apoplectic paraplegia which become chronic, the pathological states are identical with those of paraplegia originating from ordinary causes. Of those we may notice especially the sloughing of the nates over the sacrum and trochanters (cases 6, 7, 15, and 16); the disorganization of the kidneys, ureters, and bladder (cases 7 and 16), with remarkable alkalinity of urine; the morbid action of the liver and digestive apparatus; the elevation of the cutaneous temperature; and the slow and tranquil death (cases 6, 7, 14, 15, and 16).

Although there cannot be selected from the foregoing inferences a precise pathognomonic mark by which to distinguish a spinal apoplexy, yet I think that a sufficiently correct diagnosis may be given of the affection. If all the parts of the body below a certain point in the spinal tract have become suddenly paralysed, more especially, as is generally the case, if pain has been suddenly felt at this point, immediately previous to the occurrence of the paraplegia; and if it is found that the spine has sustained no concussion, that there is no affection of the sensorium, of speech, or the muscles of the face, and that no fever, muscular spasms or contractions are present, then, there is every reason to conclude that sanguineous extravasation has taken place.

The suddenness of the attack is the chief feature of distinction from a morbid growth pressing upon the cord; the unimpaired in-

tellect and the paraplegia will distinguish it from cerebral disease; and the non-existence of fever at first; of pain after the palsy is complete, and of spasms, contractions, and rigidities in the early progress of the case, will serve to discriminate it from inflammation of the meninges, or of the medullary substance.

The *treatment* of spinal apoplexy may be disposed of in a few words; for the objects to be sought, and the means employed, are such as are generally approved of in cerebral hemorrhagic extravasations. To take off the weight of the circulation, so as to prevent further extravasation, and the occurrence of inflammatory action, absolute rest, and general and local bleeding, are evidently of primary importance; and such derivatives as act freely on the mucous and cutaneous surfaces, ought to be good auxiliaries. But the use of all active means would require the greatest attention to the state of the patient's strength. And in seeking to effect the next object of treatment, namely, the absorption of extravasated blood, the knowledge of the feeble degree of nervous energy and vital cohesion retained in the paraplegic state, should deter from an incautious use of mercury, iodine, or counter-irritation, and a good deal rather be trusted to the *vis medicatrix naturæ*. The main endeavour should be to nurse and sustain the patient's strength, and to guard against the influence of those causes which are most likely to occasion additional disturbance of so many important organs and functions. This will be best accomplished by suitable diet, tonics, and gentle aperients; and while the catheter is used when circumstances permit, to diminish the tendency to disorganization of the coats of the bladder, the patient should be laid, if possible, on the hydrostatic bed, to preserve the cuticular surface from injury, which might ultimately hasten on a fatal result.

ARTICLE IV.—*Note on the Dressing of Blisters.* By DOUGLAS MACLAGAN, M.D.

I HAVE for some years been in the habit of dressing blisters in a way not, I believe, generally adopted, but which I am induced to bring under the notice of the profession, as I have found it very convenient in practice. It consists merely in substituting, as is done in burns, dry cotton wadding for the ordinary dressing with healing ointment. When I order a blister, I generally direct that after it has been applied for the requisite number of hours, it shall be removed, and the part covered for two hours with a soft warm poultice of bread and milk. The effect of the poultice generally is to make the vesication more complete, and at the same time to moderate the tenderness of the blistered part. When the poultice is taken off, the vesication, if it

has not burst spontaneously, is to be cut so as to discharge the serum, and then a thick layer of soft cotton wadding applied over the part with the undressed or woolly surface next the skin. If in the course of a few hours this should become soaked with the serous discharge from the blister, so much of the cotton may be removed as can be done without disturbing the loose epidermis beneath, and the whole again covered with a dry layer of cotton. This is all the dressing which is in general requisite. The cotton is allowed to stick to the skin of the blistered part, and when a fresh layer of epidermis is formed, which takes place very readily, the old epidermis and cotton come off together, leaving a smooth whole surface below.

The advantages which I have found this plan to offer are, first, that it renders the blister much less painful and annoying to the patient than when unguents are used. The tenderness in fact is comparatively so trifling, and the protection by the cotton so good, that I have been enabled without annoyance to the patient to percuss freely, and apply the stethoscope firmly over blistered parts, which had been dressed for the first time only an hour or two previously; secondly, the blisters heal faster under it than under dressings with cerate; for, although the cotton may remain adhering for some days, I have generally found, that within twelve hours the patient ceases to feel the blister a source of annoyance. Lastly, it dispenses with the greasy applications so disagreeable to patients of cleanly habits.

The above plan has appeared to me particularly serviceable in an application of blisters which I am frequently in the habit of making, viz. to the treatment of ring-worm. When this troublesome disease exists on the scalp in one or two detached spots, and more especially when it appears on the face, neck, or arms, it may, if taken in time, generally be cured in a few days, and prevented from spreading by blistering the surface *thoroughly*, and dressing the blisters with the cotton. A small cantharides plaster a few lines larger than the affected spot is much more efficient and manageable than the acetic acid, nitrate of silver, and other caustics frequently in use. I have seen very ugly sores formed on the neck in delicate females where caustic had been applied to the eruption, but I have never seen any bad effects follow the application of the blister, and the disease on this part of the body is generally cured by one application. I have seen it, however, fail on the scalp from this part being less easy to vesicate thoroughly. Unless the whole affected surface is completely blistered, the disease is not cured, and therefore, where the eruption has been allowed to spread over a great part of the scalp, the blistering plan will not succeed, and would constitute a very severe and formidable plan of treatment.

Where, instead of wishing to heal a blister soon, the object of the practitioner is to keep it open, as in the endermic application of remedies, there is occasionally some difficulty experienced in maintaining a free raw surface. A little management will accomplish

this. The blister should be somewhat larger than the surface, which it is intended to keep open. When it has been kept on for the requisite time, the part is to be poulticed, especially if it has not risen freely. The whole loose epidermis is then to be removed, which a steady hand with a pair of forceps and scissors can accomplish, without causing more pain than follows the mere exposure of the raw surface to the air.

When a medicinal substance is to be applied, it is to be sprinkled over the raw surface, and the part covered for about two hours with a pledget of simple ointment. At the end of this time, savin cerate is substituted for the simple dressing, and is to be maintained until the time when a second dose of the medicine is to be applied. The simple ointment is again laid on as before, and again alternated with the savin cerate.

By following this method, I have obtained satisfactory results from the endermic application of strychnia in neuralgia, and although I have applied the blister on the cheek in females, I have not found that it left any permanent mark on the part. I have generally used two grains of strychnia diluted with six or eight grains of white sugar, and divided into twelve powders, one of which may be applied night and morning. In several cases of severe neuralgia of some years standing, I have succeeded in giving great relief to the patients. In three instances, females of different ages, exemption from paroxysms of pain lasted between two and three months. I cannot say that I have been able to trace a radical cure directly to the strychnia, but it has appeared to me that the exemption from suffering for so long a period, has enabled them by out of door exercise and other means, to obtain an improvement of the general health, which has been followed by the ultimate removal of the disease.

129, George Street, Edinburgh,
March, 1847.

Part Second.

REVIEWS.

On Tumours of the Uterus and its Appendages. (Jacksonian Prize Dissertation). By THOMAS SAFFORD LEE, M.R.C.S., Edinburgh, &c. 8vo. London, 1847.

IN no class of disorders have greater triumphs been accomplished by rational medicine than in cases of uterine and ovarian tumours. By rational medicine, as our readers are aware, we do not under-

stand the results of experience or of therapeutic experiments, but an acquaintance with pathology, and with an exact diagnosis as a basis for treatment. We think the present state of the art affords us positive evidence, that proceeding on this foundation much has been done to point out the true nature and origin of tumours of the uterus and its appendages, and that our means for arriving at an exact diagnosis are now so improved, that there is little danger of falling into the gross errors formerly committed even by the most intelligent practitioners. It must also be acknowledged that this branch of medicine is greatly indebted to Professor Simpson of Edinburgh, whose valuable communications given to the public through the medium of this Journal have rescued uterine and ovarian diseases from the obscurity with which they were formerly surrounded, and placed them among these maladies that may be easily distinguished. He has accomplished for them, what Laennec did for lesions of the lungs; he has established physical signs and a mode of exploration whereby they are rendered cognisable to the senses. He has dissipated conjecture and uncertainty, and introduced correctness and exactitude in their stead.

The dissertation of Mr Safford Lee is characterized by a painstaking compilation of much that has been written upon the subject in this country. Very little is said of the labours of continental inquirers, more especially of German ones. He has carefully examined the museums in London, and described several of the important preparations to be found in them connected with his subject. The work also contains several statistical tables in the second part on diseases of the ovary. Lastly, the author seems perfectly alive to the advantages of a physical examination, and has himself employed Dr Simpson's uterine sound as a means for diagnosis. On the other hand, Mr Lee appears to know very little of the minute structure and true pathology of either tumours in general, or those of the uterus and ovary in particular. We nowhere find any positive information on these important subjects, and the treatment, consequently, is destitute of any precise aim, and founded on the experience of others.

The book is divided into three parts. The first treats of tumours of the uterus, the second of diseases of the ovary, and the third of tumours of the vagina and the external organs of generation.

Tumours of the uterus are divided into fibrous, polypoid, soft polypoid, cauliflower excrescence and encephaloid growths, under each of which heads we have a very useful summary of the ordinary morbid anatomy, symptoms, diagnosis, and treatment of these diseases.

Diseases of the ovary are divided into, 1st, ovarian dropsy; 2d, organic and malignant changes in the ovary. Under the first head the author has given several statistical tables, which, as far as they go, seem carefully drawn up, and are about as useful as such tables can be. Of 136 cases, 88 were married, 37 single, and 11 were

widows; of 140 cases, there occurred between the ages of 15 and 20, 3; 20 and 30, 37; 30 and 40, 45; 40 and 50, 26; 50 and 60, 19; 60 and 70, 3; 70 and 80, 2; and in 5 the age is not mentioned.

From table 3, it would appear that out of 131 cases, the disease lasted only one year in 38, only two years in 25; 17 patients survived three years; 10, four years; 3, five years; 5, six years; 4, seven years; 3, eight years; 1, nine years; 1, ten years; 1, eleven years; 5, twelve years; 5, sixteen years; 1, twenty years; 1, twenty-two years; 2, twenty-five years; and 1, thirty years. This shows the great and rapid mortality of the disease under ordinary treatment, and is an argument favourable to those who wish to cure the disease radically. Out of 93 cases, the disease was on the right side in 50; left side in 35, and on both in 8.

With respect to the pathology of multilocular cysts of the ovary, the author prints a long quotation from Dr Hodgkin, which he appears to think contains all that is known on the subject. A microscopic examination in one case of the solid matter, we are told, was found to consist "of granules, and the mass appeared to be fibrous. There were also similar globules contained in the fluid, with numerous blood disks," p. 132.

"Granules"—"*appeared* to be fibrous," "similar globules!" What can this mean? We are afraid that pathology is not likely to be advanced by such unintelligible descriptions. Besides, we regret to observe that this chapter on the morbid anatomy of multilocular disease of the ovary is quite behind the present state of knowledge in other respects. For instance, he never alludes to the important pathological and practical facts ascertained by Dr Bennett, with regard to the occasional ulceration and perforation of the external walls of ovarian cysts, and the causation of the usual ascitic collection from this complication.

The author's statistics lead to the conclusion that tapping is a much more fatal operation than is usually supposed. Thus, 24 cases out of 57 died after the first tapping; 20 out of the 24 died within one month, and 12 of the 20 within seven days. In general, also, every subsequent tapping requires to be performed at shorter intervals, whilst the amount of fluid withdrawn is increased.

Mr Lee has collected 114 cases of gastrotomy, of which 74 have recovered and 40 died, making one death to three recoveries nearly. Of these patients, 89 had the tumour removed, in 18 it was not extracted, and in 6 no tumour was found. The author informs us that in 24 cases the diagnosis has been so imperfect as to compel the surgeon, after the operation had been commenced, to abandon it. He says we are as liable to make errors as Lizars, Clay, Walne, Dieffenbach, West, &c. In this we differ from him. As stated at the commencement of this article, we think physical diagnosis is now too well understood to lead to such errors in diagnosis, and if this constitute the chief objection to ovariectomy on the part of surgeons, as we believe it does, it can no longer be considered such by well

informed obstetrical practitioners. Nothing can be more injurious in our opinion to the advancement of medicine than the argument, that because diagnosis was not sufficient many years ago, or is not so even at present in the hands of some, that therefore no combination of talent and caution is to be relied on. Such, however, must be the conclusion of statistical minds, of such who make and study tables, and who, because it is therein stated that a few operated when there was no tumour, and others when there were adhesions, conceive that the certain detection of the first or the latter is in all cases impossible. The mistakes of the past, will always furnish them with a certain per centage of error, however exact the diagnosis may be rendered in future.

The following is the author's summary concerning ovarian dropsy.

(1) We have ascertained that ovarian disease is one which is not so harmless as some imagine ; that in fact, under ordinary treatment, it is very fatal. More than half of the cases recorded actually die, a large proportion of the others are reported only to be relieved, and only one in five recover.

(2) That not only is ovarian dropsy fatal, but that it is also much more *rapidly fatal* than is generally supposed ; the tables showing that more than one half, or 63 deaths in 124 patients, in less than two years, and more than half of these (viz. 38) died within the first twelve months.

(3) That tapping, which has previously been considered the only mode of palliating the disease, is a very dangerous remedy. For I find in the tables I have collected, composed of 30 patients, one half, or 15, died within four months of the *first* operation, and 12 of these were after the first tapping. That in the result of the tables drawn up by myself and Mr Southam, that of 46 cases, 20 of which died after the first tapping, 16 died within one month of the operation, and 10 of these sixteen, or one half of the whole number, died in seven days after the evacuation of the cyst.

(4) We find that, supposing the danger of the first tapping to have been escaped, that the fluid reaccumulates rapidly, and that the intervals between each operation become greatly diminished, while the quantity of fluid is increased, so that its remedial powers hardly compensate for the dangers which attend its performance.

(5) We must bear in mind that in many cases the operation of tapping can be borne frequently, and life can be preserved in a tolerable state of comfort for many years, under the careful performance of the operation, from 10, 16, 25, or even 30 years ; and that more than one in three patients, 43 in 142, survive the operation more than four years.

(6) That the operation of tapping ought only to be performed under one of two circumstances: either early, when the cyst is unilocular, or when the ovarian tumour is producing fatal pressure upon vital organs. In no case, except under the latter circumstances, ought a multilocular cyst to be punctured, because the relief given is so trifling, and the dangers of tapping are so much increased, in this form of the disease.

(7) That medicinal treatment produces only slight benefit ; it may stop the progress of the tumour for some time, but very rarely effects a cure. Pressure, as a remedy, prevents the cyst from enlarging rapidly.

(8) That ovarian disease sometimes undergoes a spontaneous cure, either by an internal rupture of the cyst, or the communication of it by ulceration into the various outlets of the body.

(9) That from the difficulty arising in the cure of this disease, the operation of extraction of the cyst has been proposed and performed in 114 cases, of which number 74 cases have recovered and 40 died, making the average mortality nearly one in three.

(10) That of these 114 operations, in 24, or rather less than one in five, the operation was obliged to be abandoned, either from extent of adhesions, from the tumour being an uterine or omental one, or from there being no tumour at all; proving most indisputably the *difficulties of the diagnosis*.

(11) That in the 90 cases where the tumour was removed, nearly one died to three recoveries.

(12) That the diagnosis of ovarian tumours is very obscure as regards adhesions and the character of the tumour; that adhesions existed in 46 of the 81 where the fact is mentioned, and in 6 there was no tumour.

(13) That where adhesions existed the mortality was greater, being one death in 2 $\frac{1}{2}$, whereas the mortality was one in three where they were absent.

(14) That the disease may be complicated with organic disease of other viscera.

(15) That the principal recorded causes of death, where it took place soon after the operation, are hemorrhage and peritonitis; but the cases are much too few to be depended upon.

(16) When death takes place in consequence of the operation, it is very rapid. Of 30 patients, where the time is mentioned, 14 died within 36 hours, and 25 within a week.

(17) That the character of the disease is of importance with regard to its mortality. In the extraction of hard tumours of the ovary, the mortality was more than 1 in 2. Of the 16, 9 were cured, 7 died, and in 5 the tumour was not removed. Whereas, where the tumor was composed partly of fluid and partly of solid matter, viz. in 65 cases, 44 were cured, 21 died, and in 14 the tumour was not extracted, making the mortality less than 1 in 3: so that encysted dropsy is much more favourable to the operation than hard tumours of that organ.

(18) That as regards the mortality of the two operations, in 85 cases where the major operation was performed, 50 were cured, 35 died, making the mortality 1 to 2 $\frac{1}{2}$: in 23, where the minor operation was performed, 19 were cured and 4 died, making the mortality 1 in 6.

(19) That in some of the cases operated on, the ovarian tumour was malignant; but that the encysted dropsy is not in the ordinary sense of the word malignant, and that it may be removed without any tendency to malignant disease appearing in the pedicle.—Pp. 209-11.

Medicines—their Uses and Mode of Administration, including a Complete Conspectus of three British Pharmacopæias, an Account of all the New Remedies, and an Appendix of Formulæ. By J. MOORE NELIGAN, M.D., Edin., M.R.I.A., Lecturer on the Practice of Physic, and formerly Lecturer on Materia Medica in the Dublin School of Medicine, &c., 8vo. pp. 485. Second Edition. Dublin, 1847.

THE first edition of Dr Neligan's work on Materia Medica came out three years ago, and took its place at once as one of the standard books on that subject. It well deserves the success and commendations it has obtained. Without being overloaded, it is full and copious on every topic of utility and interest. The arrangement followed is therapeutic, which, we think, is best adapted for a practical work. As the work was reviewed in the Monthly Journal when it first appeared, we shall confine our attention at present to a selection of some of the newer subjects with which

the talented author has enriched this edition. Of many of these detached notices have already appeared in one or other, or in both of the periodicals which this Journal represents, but the matured opinion which Dr Neligan has been able to form on these new remedies, will, we are sure, afford no small gratification to our readers. We must take them without any attempt at order, as they meet the eye in his pages.

Valerianate of Zinc, of Iron, and of Quina.—Of valerianate of zinc he says, that what is found in the shops is often of bad quality, being generally nothing more than butyrate of zinc, with some oil of valerian, and that the fraudulent salt when distilled from a glass retort with dilute sulphuric acid and water, affords a product, giving a bluish white precipitate with acetate of copper, while the product of the distillation of the true salt is not changed by the acetate; that even the true valerianate is often either badly prepared or ill kept, the indication of which is its having a strong odour of valerian, and not being completely soluble in water. Valerianate of zinc, he says, is a tonic antispasmodic, of much power, peculiarly adapted for the treatment of neuralgic affections, particularly of facial neuralgia and vertigo, and he has found it very beneficial “in most of the Protean forms of hysterical neuralgia.” He adds—“in short, I look on it as one of the most valuable modern additions to the *Materia Medica*, and I fully agree with Devay, that the chemical combination proves much more beneficial than the oil of valerian and oxide of zinc prescribed together.” The dose is from three quarters of a grain to a grain three times a day. It may be made into pill with a little mucilage or conserve of roses. Valerianate of iron is a tonic and antispasmodic. It promises to be useful in such diseases as chorea and chlorosis. It is given from one to three grains three or four times a day. It may be made into pill with hard manna and a little mucilage. The valerianate of quina is an antiperiodic, reported to be useful in obstinate intermittent affections. The dose is one grain, three times a day, in the form of pill.

Acid Nitrate of Mercury.—The acid nitrate of mercury, so much spoken of by continental writers, is a powerful caustic, much employed to destroy malignant ulcerations, especially when of a cancerous character. It is prepared by dissolving with the aid of heat 100 parts of mercury in 200 parts of commercial nitric acid (sp. gr. about 1380), the solution being evaporated until it is reduced to 225 parts. It is applied by means of a camel's hair pencil, and the parts are then covered with lint.

Hyposulphite of Soda.—This salt, like the sulphate of soda, is an active cathartic, and in France is generally preferred to the other purgative salts in cutaneous affections. The dose is from six drachms to an ounce, dissolved in water, along with some aromatic tincture.

Sulphate of Manganese.—In doses of from one to six drachms this salt is a cathartic, stimulating the abdominal viscera, and particularly the liver, to increased secretion. It is apt to produce vomiting when not combined with some other purgative, as senna. Dr Ure suggested it in gouty affections, and we noticed in our last number Dr Child's commendation of it in retention of bile. Dr C.'s dose, however, is much smaller.

Bromine and Bromides.—Dr Neligan is of opinion that the therapeutical action of bromine and the bromides is nearly, if not quite identical with that of iodine and the iodides, an opinion first maintained by Dr Glover of Newcastle. This, we think, is by no means improbable, but we cannot assent to it as an incontrovertible truth. Instead of the tincture of iodine the solution of one part of bromine in forty parts of distilled water has been employed in doses of five or six minims. The bromide of potassium used largely by Dr Williams in enlargements of the spleen, has of late been much

used to adulterate iodide of potassium ; this adulteration Dr N. regards as of little importance. In this we cannot agree with him. If bromide of potassium be really identical with the iodide in effect, let it be used under its own name ; but let us have the iodide of potassium, even at an extravagant price, free from unauthorized admixture. The bromide of barium is soluble in water, and is given from one to five grains, three times a day ; and an ointment is made of one part with ten parts of lard ; the bromide of calcium is used from three to ten grains, made into pill with conserve of roses ; the sub-bromide of mercury is used to the extent of from one to two grains daily, the bromide of mercury from 1-16th to $\frac{1}{4}$ of a grain daily ; the bromide of iron is made into pill with extract of liquorice, the dose being from three to eight grains ; it is also made into ointment with one part to fifteen parts of lard.

Fer Réduit.—This is metallic iron reduced to a minute state of division. It is obtained by passing a current of hydrogen gas over the black oxide of iron, in a porcelain tube, heated to redness. The supposed advantage of this preparation is its being easily acted on by weak and dilute acids, as the lactic and muriatic acids in the gastric juice. The dose is from one to ten grains.

Mercurial Candle.—Cinnabar, designed for the fumigation of parts, is mixed with melted wax, and a wick being added, is moulded into a small candle, the fumes from which, when lighted, may be conveniently directed by means of a curved glass funnel, on any part of the body.

Arsenical Paste and Caustic Powder.—Arsenic, two parts ; sulphate of mercury, one part ; animal charcoal, two parts ; mix for the arsenical paste : it is formed into a thin paste, with a few drops of water, and spread upon the surface to be acted on, which should never exceed an inch in diameter at each application. For the arsenical caustic powder, arsenic, eight parts ; dragon's blood and cinnabar, of each fifteen parts ; mix and reduce to a fine powder. This powder is made into a paste with a little saliva or gum-water just before it is applied. These are used in malignant or cancerous ulceration, especially of the skin of the face, in lupus, in onychia maligna, and in hospital gangrene.

Caustic of Filhos.—This consists of 120 parts of potassa cum calce to which, heated in a clean iron spoon, 40 parts of fresh quick lime are gradually added, and the mixture stirred until the whole is intimately mixed ; while still fluid, this mixture is poured into leaden tubes, of three or four lines in diameter, and when cold the parietes of the tubes are thinned with a file. These caustic pencils are to be kept in glass tubes, with a little finely powdered quick lime, and secured with corks. These pencils are useful for cauterizing the neck of the uterus and for some other surgical purposes.

Caustic Powder of Vienna.—Take of potassa cum calce fifty parts ; quick lime sixty parts ; powder the two substances separately in a warm mortar, and mix them intimately and rapidly ; keep in well-stopped bottles. This powder is made into a soft paste, with a little spirit, and applied to the part to be cauterized.

Caustic of Recamier.—Chloride of gold six grains ; dilute nitrohydrochloric acid one ounce ; dissolve. It is to be applied by means of a piece of lint dipped in it : the eschar which it forms falls off in a few days, and leaves a clean surface underneath.

Gondret's Ammoniacal Blistering Ointment.—"Take of axunge one ounce ; oil of sweet almonds an ounce and a half ; melt together with a gentle heat ; pour the mixture, while still liquid, into a wide-mouthed glass vessel ; then add water of caustic ammonia five ounces, and mix with constant agitation till cold. It may be kept unchanged for many months, in stoppered glass bottles, in a cool place. It is applied by spreading it on the skin, and covering the part with a compress ; it vesicates in about ten minutes.

Blistering Cloth, Charta Vesicatoria.—Oil of cantharides obtained by ether four parts ; yellow wax eight parts ; melt with a very gentle heat and spread

on waxed linen or calico. In the charta vesicatoria, paper is used instead of calico or linen.

Papier d'Albespeyres.—Under this name applications are used for keeping up a discharge from blistered surfaces. “No. 1, which is the weakest; white wax five parts; olive oil three parts; oil of chocolate four parts; spermaceti three parts; turpentine one part; cantharides one part; water eight parts; all melted together. No. 2, white wax three and three-fourths; olive oil two and one-fourth; oil of chocolate three; spermaceti two and one-fourth; turpentine three-fourths; cantharides one; water eight. No. 3, the strongest contains the same quantities of cantharides and water, and half the proportions of the other ingredients contained in No. 1. The compound is spread on paper or on fine linen or calico.”

Chloride of Carbon or Chloric Ether.—This liquid, besides these names, is also termed chloride of formyle and terchloride of carbon. As chloric ether is one of its common names, it should be remembered that that name was originally applied by Thomson to a different substance, namely, the oil of the Dutch chemists formed when chlorine is brought into contact with olefiant gas; which substance is now termed by some chlor-etherine. The liquid under our notice at present is named by Liebig, the chloride or perchloride of formyle, and is obtained when alcohol is distilled with chloride of lime. It has a decided sedative effect whether used internally or applied locally. It has been employed in asthma, spasmodic cough, and cancerous and other painful diseases. From three to five minims are given suspended in water, though a drachm does not appear to produce any unpleasant effects. For external use, one or two drachms are added to a pint of water.

Gallic Acid.—A powerful astringent manifested particularly on the urinary organs, and therefore, says our author, deserving of a trial in Bright's disease of the kidney, especially in cases where blood is present in the urine. Its application to uterine hemorrhage, as urged by Professor Simpson and Dr Locomock, has been for some time before the profession. Dose, five to ten grains two or three times a day in pill.

Naphtha Medicinalis.—The mode of preparing the liquid sold under this name is still kept a secret—it has the chemical characters of pyroxilic spirit. It has been extravagantly praised, but deserves the reputation of a very useful sedative in tubercular phthisis; “the harassing cough and troublesome vomiting,” our author says, “so frequent an attendant on the advanced stages of consumption, being more relieved by it than by any other remedy, I have employed.” Dose, five to twenty minims three or four times a day. Dr N. gives the following formula: medicinal naphtha two drachms; compound tincture of cardamoms six drachms; water seven ounces; mix: dose, half an ounce every fourth hour.

Fel Bovinum.—Dr N. gives his testimony in favour of the recently revived use of ox-gall. “From my own experience of its effects in numerous cases in which I employed it, I can speak most highly of its remedial powers, particularly in that morbid irritability of the stomach, accompanied by vomiting soon after the meals have been taken, and which does not depend on organic disease; it appears to act as a gentle laxative.” Dr N. uses it prepared as follows: dilute any quantity of ox-gall with an equal quantity of distilled water, set aside, for twelve hours, until the impurities subside; pour off the clear liquor, boil and strain through linen or calico, then evaporate in a water bath to the consistence of an extract. The dose is from five to ten grains, two or three times a day.

Pomade of Balsam of Tolu.—Prepared lard two ounces; white wax two drachms; melt together; remove from the fire, and when they are beginning to thicken, add with constant stirring, balsam of tolu two drachms, and oil of rosemary twenty minims. This is an excellent stimulant in alopecia.

Tincture and Emulsion of Castor Oil.—The tincture of castor oil recently recommended highly by Parola, may be prepared by macerating eight ounces of the seeds, freed from the seed-coats and bruised, in a pint of rectified spirit

or ether, for seven days, and filtering; the dose of either being from two to three drachms.

Righini's Emulsion is as follows: gum arabic in fine powder two drachms; pure water three ounces; make a mucilage with a small quantity of the water, and add of castor-oil one ounce; mix carefully and pour in the rest of the water with a constant agitation; and finally add the juice of one orange and one ounce of simple syrup. The nauseous taste is here completely concealed though the draught is too bulky.

Cevadilla as a Vermifuge.—Cevadilla or sabadilla (*veratrum sabadilla*) has been long spoken of as a vermifuge, but appears to have obtained of late in its favour some high continental authorities, particularly in tape-worm and ascarides. The dose is from three to eight grains, successive mornings fasting, followed on the ninth day by an active purge in cases of tænia. In ascarides an enema is used; cevadilla two drachms; water ten ounces; milk three ounces; the cevadilla is boiled in the water until it is reduced to seven ounces, then filtered and the milk added.

We have thus condensed some specimens of the novelties in *materia medica* to be found in Dr Neligan's work; and it would have been easy, had our limits permitted, to have given many more. As it is, there is enough to show that our author has spared no pains to bring his book up to the current of the day in this ever-expanding subject.

Über den gegenwärtigen Standpunkt der Pathologischen Chemie des Blutes, Von Dr H. Haeser.

On the Present State of Pathological Chemistry of the Blood with especial relation to the results hitherto acquired in the Nosology of the more important Acute Affections. By Dr H. HAESER, Professor of Medicine in Jena. Jena, 1846.

LECANU, Denis, Nasse, Andral, and Gavarret, Simon, Zimmermann, Popp, Becquerel, and Rodier, have furnished a number of analyses of diseased blood, which the author thinks sufficiently numerous to admit of rational conclusions. He has therefore undertaken the task of reducing them, but the results arrived at as far as we can discover, are in no degree commensurate to the labour bestowed upon them.

We pass over the critical notices Professor Haeser gives concerning the different methods of investigation. We need only quote the one recommended by him for clinical purposes:—

(1) "Two glass-cylinders, 5 inches high and $1\frac{1}{2}$ inches wide, are warmed by being plunged in warm water, one of them taking up the 1st and 4th; the other, the 2d and 3d quarter of the evacuated blood.—During the bloodletting itself, we may notice the temperature, colour, &c., of the blood.

(2) "Half of the evacuated blood is to be defibrinated by stirring it with a stick. Determinating, then, its density by the areometer, one may, without great mistake, infer from it the quantity of the blood-corpuscles.

(3) "The same portion of defibrinated blood is subservient to the observation of the sinking capacity peculiar to the blood-corpuscles, the degree of which

holds a direct proportion to the quantity of albumen (Nasse) and an opposite one to that of the fibrine (Becquerel and Rodier.)

(4) "Lastly, the non-defibrinated blood as well as the occasionally appearing buffy coat are to be examined microscopically, by which a cursory estimation of the quantity and occasional alterations in form of the blood-corpuscles, of the white corpuscles contained in the buffy coat, the fibrinous coagulability and occasional occurrence of pus, &c., may be gained.

The author gives tabular views of numerous analyses of the blood in pneumonia, pleuritis, bronchitis, acute rheumatism, typhous fever, puerperal peritonitis, erysipelas, variola, scarlatina, and rubella. The hypothetical conclusions he has derived from these are scarcely warranted by the facts. We cannot help noticing the silence which our author has kept concerning the chemical investigations of Zimmermann, one of the most ingenious and untiring pathologists of the day. This is the more censurable, his omission of Zimmermann's researches being probably an intended one, inasmuch as when mentioning the excretory signification of fibrine (page 99), he does not name the pathologist of Berlin, although it is to him we owe the establishment of this idea, which has been recently advocated by Beltrami of Milan, and even by Rokitansky.

Professor Haeser considers the following aphorisms warranted by chemical investigations:—

(1) The average composition of the healthy blood is probably the following: 22, fibrine; 131, blood-corpuscles; 70, albumen; 6·8, salts; 210, solid matter generally; 790, water.

(2) The most general effect produced by acute diseases upon the blood, consists in the diminution of its solid matters in general, and especially of the blood-corpuscles. The only exception to this rule is to be found during the first stage of typhus, scarlatina, and measles. Whilst the blood-corpuscles appear thus diminished, the solid residue of the serum, especially the albumen, is to be met with in greater amount; the same is the case with respect to fibrine.

(3) During the progress of acute diseases, the blood-corpuscles become yet more diminished, and simultaneously the solid matter of the serum is also undergoing diminution. It is only the fibrine that is sometimes increasing even during the progress of genuine inflammatory diseases, whilst it is also diminished in the "pyrexia." The same effect, as occurs in advanced disease, can generally be produced by bloodletting.

(4) Concerning the special character of the true inflammatory processes, we meet with the following characteristic alterations of the blood; diminution of the alkaline salts, moderate increase of albumen and a considerable one of fibrine. Besides this, there appears an incorporation between fibrine and albumen, and a direct one between the former and water.

(5) Pneumonia is chiefly characterised by a great amount of fibrine, pleuritis, by that of albumen; bronchitis, by a comparatively slight alteration in the composition of the blood.

(6) In acute articular rheumatism, the blood differs from that in genuine inflammations only by the greater diminution of blood-corpuscles and the corresponding abnormal amount of the solid residue of the serum and of the water. Another particularity of the rheumatic blood is the normal quantity of the salts and the steadiness of the amount of fibrine.

(7) In the fever accompanying the pyrexia, we do not recognise any constant alteration, either in the solids or in the blood capable of explaining their essen-

tial character (Andral). In typhus fever we observe the following alterations. Till the eighth day of the affection, the blood-corpuscles, together with the albumen, and in consequence of these, the solid matter generally, are in undue amount; after that time a progressive diminution of all the solid substances takes place, occurring in the blood-corpuscles most, and the fibrine least; on the 21st day, the general increase of the solid materials returns again. One or two bloodlettings, made during the first eight days, produce but a slight influence upon the composition of the blood, whilst at a later period, the blood-corpuscles are thereby very considerably diminished.

(8) Acute articular rheumatism, simple erysipelas and puerperal peritonitis considered as to the composition of the blood, form a group which differs from inflammation as well as from typhus fever by the considerable quantity of water, serous residue, and fibrine induced, and by the extraordinary diminution of the blood-corpuscles. The analogy between the three diseases just mentioned becomes still more obvious on considering the exudations in them, the water and albumen of which, compared with the composition of the blood, are much increased. At a later period and after bloodlettings, puerperal peritonitis approaches very nearly typhus fever.

(9) Variola, scarlatina, and rubeola, constitute also a natural group, so far as the composition of the blood is concerned. To the two last named diseases, the undue amount of solid matters in general at their commencement, and the constant increase of albumen and alkaline salts, seem to be characteristic. Hence these diseases approach on the one hand to the erysipelatosus, on the other to the typhous composition of the blood.

This work, as it contains an analysis of all that is known upon the subject, will be found very useful to those desirous of studying the progress made in Hematology. We do not think with the author, however, that positive facts and observations in connexion with the morbid states of the blood are sufficiently numerous to warrant either his conclusions, or any others which have yet been formed.

A Manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By S. WHARTON JONES, F.R.S., &c. London, 12mo. 1847. Pp. 570.

THERE are few persons better qualified than Mr Wharton Jones to write a work on ophthalmic medicine and surgery, well acquainted as he is with the anatomy, physiology, and pathology of the organ, the diseases of which he describes. The work now before us partakes both of the faults and advantages of manuals in general, being too short and condensed to meet all the wants of the practitioner, although well adapted to remind him of general principles and methods of operating on an emergency. The student will find it an excellent introduction to a study of ophthalmology, although we advise him not to imagine that its perusal will render the more complete treatises on the subject unnecessary. The plates and wood-cuts are beautifully executed, and the paper, typography, and general finish are similar to what may be observed in most of those works published by Mr Churchill.

The London and Provincial Medical Directory. London, 1847.
12mo, pp. 356.

THIS is an exceedingly useful work, and contains a mass of information not collected by others in any previous publication. It presents us with a medical almanack, a list of all the persons practising in London and the English provinces, an account of their literary productions, and a biographical sketch of eminent persons recently dead, regulations of the medical boards, &c. &c.

In the preface we find an attempt made to define the meanings of various medical designations—thus a holder of the license of the Apothecaries' Company is a "General Practitioner"—a fellow or member of the Royal College of Surgeons, is a "Surgeon." Here we are startled with being told that such title is considered (by the Editor) to express inferior attainments to that of general practitioner, "as in fact, the former only indicates a class of partially educated medical men, who with the diploma of the Royal College of Surgeons alone, have often ventured to assume the responsibilities of general practice." What temerity! The responsibilities alluded to we presume are the compounding pills, draughts, and mixtures. Those who possess the diploma, both of hall and college, are "Surgeons in general practice," and those who possess a degree are "Physicians in general practice." This preface is an amusing specimen of the general attainments, general liberality, and general views of the London general practitioner.

Part Third.

PERISCOPE.

ANATOMY AND PHYSIOLOGY.

DISCOVERIES OF EDWARD WEBER ON MUSCULAR CONTRACTION. By ERNST HEINRICH WEBER.

As the employment of the ordinary galvanic apparatus for the purpose of exciting muscular contraction, produced this effect for far too short a period to allow any direct or microscopic observation of the changes so occasioned, Edward Weber used the magnético-galvanic rotatory apparatus, and thereby produced muscular contractions of longer duration. On removing some muscular fasciculi from a frog, and placing them, when moderately flexed, on a slip of glass, they were seen to become straight at the moment of excited contraction, and continued so until the magnetic excitement and attendant contraction were interrupted. At that moment the previously straight fasciculi instantly exhibited very regular and elegant zig-zag turnings, the angles of which were formed by the combined and corresponding flexions of all the fibres entering the fasciculus. The contrary, therefore, strictly happens to what has generally been supposed

to occur: the zig-zag appearance belongs to the moment of relaxation, and not to that of contraction. Of this perfectly novel fact the following explanation is given. The muscular fibres, which are occasionally flexed and nodulated when cut off, lose this appearance at the moment of contraction by the simultaneous shortening and thickening of their different portions. As soon, however, as the excitement becomes interrupted, the muscular fasciculi regain their former length, and, being prevented by the friction of the glass from stretching to their whole extent, their extremities cannot be much moved, they become repeatedly flexed in consequence, and hence the zig-zag appearance. The nodulated swellings observed by Bowman are not occasioned by the vital action of the muscles, but by their absorbing the water in contact with them at their cut extremities. Further, according to microscopic observations on the muscles of vertebrate and invertebrate animals, as well recent as when treated by acetic acid, the fasciculi do not consist of segments, neither do the elementary fibrillæ seem to be composed of globules or discs. The appearance of transverse striæ are owing to the folds of a membrane or sheath that surrounds the fasciculi, and serves to facilitate the extension of the muscles within certain limits.

There is a great difference between the mode of action of the animal and organic muscles. The animal muscles contract the moment they are excited, either directly or through the nerves going to them, but they have no power of continuing or renewing the action when the stimulus is removed. Again, when the brain or spinal marrow is excited either directly or by stimulating a sensitive nerve alone, the muscular contraction does not follow immediately, but after a certain time, or not at all. Hence the passage of impressions to the nervous centres, and from thence to the muscular nerves, is not a direct one, but undergoes some interruption in the former. Daily experience also shows us that we do not start the very instant an unpleasant sensation of seeing or hearing is experienced, but some moments afterwards. The organic muscles, on the contrary, do not contract immediately on being stimulated; a certain interval always follows the excitation, either when direct or through their nerves, before they act. But contractions once produced continue for a considerable time after stimulation has ceased, and even other movements (peristaltic) are induced in neighbouring muscular fibres. Hence the nervous centrum of organic muscles is situated within themselves, and their movements are not regulated by the brain or spinal marrow.

The anatomical structure of the organic and muscular fibres is in close correspondence with this functional distinction, the striated ones belonging to the first, and the non-striated to the last. The œsophagus of birds and amphibia entirely destitute of striated fasciculi, manifest no animal motion, whilst that of mammalia (as the rabbit), where the external and internal layers are composed of striated muscular fasciculi, exhibit distinct animal movements. In the cat, motions are of different kinds, according as the stimulus is applied to the upper, middle or inferior portion of the œsophagus, organic muscles being absent in the first, but present in the two last. Reichert discovered striated muscles in the stomach and intestinal tube of *Cyprinus tinca*, whilst the same organs in other species of *Cyprinus*, in fishes, and in the Vertebrata generally, are destitute of them. On stimulating the medulla oblongata, and divided vagus in the first named animal, it was found that a sudden but momentary movement was induced. The iris of birds also possesses striated muscular fasciculi, and the researches of E. Weber have shown that they possess animal movements. In the iris of the mammalia on the other hand, the radiated and circular fibres present the characters of organic muscle, and the movements and kind of contractions observed when the iris is wounded agree with the function ascribed to them. There are some exceptions to the general law now pointed out. The most evident is, that the heart presents striated muscular fasciculi, whilst its movements are organic. It must be noticed, however, that whilst the structural resemblance is far from perfect, the rapidity and energy of the functional power seems proportionate to it. The muscles of mollusca and of worms, which

are non-striated, must also be considered exceptional, together with the intestinal muscles of the crustacea and insecta which are striated.

Numerous experiments on frogs, birds, and mammalia have proved that, whenever the nervi vagi themselves, or the points of the brain from whence they originate are stimulated, the heart becomes relaxed, its rhythmic movements retarded, and at length interrupted. To produce this effect, however, it was necessary to excite both nerves of the eighth pair, as the application of a stimulus to one only produced no effect upon the heart. It was also found that galvanism applied to the orifice of the vena cava, produced an opposite effect to that occasioned by its application to the bulb of the aorta, as in the first case the movements of the heart were rendered slower, whilst in the latter they were rendered more frequent and energetic. This fact, which is of great importance in physiology and pathology, leads to the conclusion that the bulb of the aorta is more intimately connected with the sympathetic, and the vena cava with the vagi nerves. Weber also determined that on stimulating the medulla oblongata, and both vagi with the galvano-magnetic apparatus, and continuing its action, that the excitement could be propagated for fifty-five minutes, after which period it ceased to be transmitted, and the heart commenced to palpitate, notwithstanding the continued galvanism, from the non-reception of impressions from the vagi.

Further experiments determined that the application of galvanism, or of strychnia to the spinal cord, produced tetanic contraction of the corresponding muscles, whereas when the same stimuli were applied directly to the animal muscles, or to their nerves, no tetanus is caused, owing to their containing no nervous centre. On galvanising the heart, our author observed tonic contraction, which he ascribes to the circumstance of its possessing a nervous centre in its substance. He found that on bringing the inner surface of the heart of a frog in contact with strychnia (the blood having previously been emptied), its first effect was to accelerate the pulsations, and this was followed by tetanic contraction, and interruption of the pulsations. It is a well known fact that the different portions of a frog's heart, viz. the ventricle, atrium, and inosculating portion of the cava, continue to beat, even when separated from each other. E. H. Weber has observed the same fact in the human subject in a case of murder. The increasing debility of the frog's heart is manifested more by the smallness of the contractions, than by their diminution in number.—*Müller's Archives*, Heft 4 and 5, 1846.

We cannot agree with Weber in considering the transverse striæ to be caused by a sheath surrounding the muscular fasciculus, an opinion maintained, however, by several anatomists, and this for the simple reason that these striæ may be seen in three, two, or even one of the fibrillæ, when the fasciculus is torn or broken up. The physiologist will find a large amount of interesting matter, and an account of numerous other experiments, which we have been obliged to omit for want of space, in the original article.

ON THE ENTRANCE OF COAL AND OTHER INSOLUBLE SUBSTANCES FROM THE INTESTINAL CANAL INTO THE BLOOD. By PROFESSOR OESTERLEN, IN DORPAT.

Charcoal rubbed down into a fine powder, and mixed with water, was given to several animals, chiefly rabbits, for from three to six days. They all swallowed about one ounce. With the exception of blackened fecal discharges, nothing anormal was observed during life, and when killed the only unusual appearance discovered was the black colour of the intestinal mucous membrane. In all the animals, however, blood taken from the mesenteric vein, the portal vein, as well as the clots found in the right cavities of the heart, in the liver, spleen, and lungs, exhibited on a microscopic examination, minute pieces of charcoal. The size of these varied from 1-300th to 1-60th, and in some instances to 1-42d of a line. They were less numerous in the kidney

and blood of the vena cava. The urine and bile contained none. Other animals fed on Berlin blue, gave exactly the same result. Thus there can be no doubt that solid and insoluble substances, after being received into the stomach may enter the mesenteric veins, and through them the general circulation.—*Zeitschrift für Rationelle Medizin*, Band 5, Heft 3, 1847.

SURGERY.

EXCISION OF A FATTY TUMOUR WITHOUT PAIN. By DR JOHNSTONE OF MADRAS.

Our knowledge of Dr Johnstone, as well as the inherent correctness of the report induces us to publish the following case :

Mrs —, European, of a well regulated mind, a well formed figure, and a system remarkably free from any kind of nervousness. Has been six years and a half in India. General health good. Before leaving England, she observed a tumour about the size of a field bean over the posterior aspect of the right shoulder. It continued to enlarge gradually but slowly, and at the end of five years had attained the size of a small egg. For the last two years it has increased much more rapidly, and now constitutes a tumour of an adipose nature, lobulated, mobile and kidney shaped. It measures about six inches in length, four inches in breadth, and two and a half inches in thickness at its thickest part, and stretches from the spinous process of the seventh cervical vertebra, downwards and outwards towards the acromion and outer third of the spine of the scapula, along the upper border of the trapezius muscle. A sensation of weight and slight numbness of the right arm are the chief inconveniences complained of.

Various kinds of treatment having been useless, the patient determined on having it removed. Dr Johnstone having carefully examined into the evidence brought forward by Dr Esdaile of Calcutta, in support of the fact of his having performed upwards of one hundred painless surgical operations within the last two years upon natives, under the influence of alleged mesmeric agency; having also read the favourable report of the committee appointed by the honourable the deputy governor of Bengal, to observe and report upon such operations, he advised his patient to try the effect of mesmerism previous to the operation. She consented, and he succeeded on seven following days in putting her into a cataleptic sleep, in the which latterly she was unconscious of pinching, pricking with a pin or lancet, and of the manipulation of the tumour. On the eighth occasion, January 9th, 1847, the tumour was removed in the usual way, by means of two elliptical incisions, each seven inches and three lines long, and subsequent dissection of the morbid growth. Three arteries required ligature. The edges of the wound were brought together by four stitches, supported by straps of adhesive plaster. Dr Smith, Mr S. S. Young, surgeon, the patient's husband, an apothecary, and a nurse were present. Professor Key had promised to attend, but was unavoidably detained in his class room.

The time of the operation, from the commencement of the first incision to the application of the last roll of bandage, amounted to eighteen minutes, during all of which time, not the slightest trace of suffering or sensibility on the part of the patient could be detected. The pulse continued unchanged at eighty, as S. S. Young satisfied himself, and the respiration perfectly tranquil; no moan or sigh escaped her lips—no alteration in the impression of her features was observed—no instinctive motion or wincing was detected; once only she moved her head instinctively to free her mouth and nostrils from a little pool of blood which had collected about them, and was interfering with her breathing. She was easily demesmerized, before which, care was taken to

conceal as much as possible all traces of the operation. When she awoke the following dialogue ensued. "Well, have you been asleep to-day?" "Yes, I think I have." "Do you think you slept more soundly to-day than yesterday?" "I cannot say." "Did you feel me turn you or do anything to you to-day?" "No, but I feel something smarting, and my face and eyes feel stiff." She now put her left hand up to her shoulders as she had often done before, and perceived that the tumour had been removed, of which she confessed perfect unconsciousness. The stiffness of the eyelids and face was caused by dried blood. Pulse eighty—respiration natural.

The tumour weighed 3 lbs. 1 dr. two hours after removal. The wound was dressed with cold dressings, and almost entirely healed up by the first intention. She suffered no pain in the wound, continued perfectly free from fever, and was confined to her room only one day. The pulse continued at 80 for two or three days after the operation, when it rose to 90, apparently its natural standard. She speedily recovered, and now feels better than she did previous to the commencement of the mesmeric sittings.

CASE OF DOUBLE AMPUTATION. By M. BROUZET.

M. BROUZET relates the case of a man on whom he practised amputation of both legs below the knee, the one immediately after the other, on account of injuries inflicted by the wheel of a railway carriage. The patient suffered comparatively little from the double shock of the injury and the amputations, and made a speedy and perfect recovery. *Revue Medico-Chirurgicale de Paris*. Fevrier, 1847.

It has been laid down as a precept by two French surgical writers, M. Velpeau, and M. Vidal de Cassis, that the system being unable to stand the shock of a double amputation, two limbs should never be amputated at the same time, at least, in such cases of injury as necessitate amputation above the wrist and ankle joints. It appears to us that there are cases, in which no general rule can be laid down, and in which the surgeon must be guided entirely by his own discretion. The propriety of operative interference must depend on the features of each individual case. Two other cases are mentioned by M. Brouzet, of recovery from simultaneous double amputations. In the Hotel des Invalides at Paris, many veterans are to be seen enjoying good health, who have lost more than one limb in action, and many cases might be cited, where recovery has followed this severe mutilation.

We have heard of both limbs being amputated at the same moment, by different surgeons, in cases of this kind, but we are doubtful whether the shock to the system is less than when the two limbs are amputated successively.

DISLOCATION OF THE LOWER JAW. By M. NELATON.

M. NELATON, Surgeon of the Hôpital St Antoine, believes that the displacement forwards of the condyle of the lower jaw, in dislocations of this articulation, is much greater than is generally supposed, and that in the partial luxation, which can be produced at will by many, the condyle slips over the tubercle in front of the glenoid cavity.

But in complete luxation, the condyle is carried further forwards, and M. N. is of opinion that the extremity of the coronoid process becomes hooked round the inferior angle of the malar bone, where it is received into a small fossa behind the suture, which connects this bone with the superior maxilla. Some fibres of the masseter are probably torn, and become stretched over the extremity of the coronoid process, forming an additional obstacle to the reduction of the dislocation. Such a displacement cannot take place without preternatural relaxation, or rupture of the ligaments of the articulation.—*L'Union Médicale*, Mars 1847.

RHINO-PLASTIC OPERATION. By M. BLANDIN.

In the same journal, from which we extract the above, the history of a case is given, in which M. Blandin attempted the formation of a new nose. The entire nose had been destroyed by syphilitic ulceration. The flap of skin, which was intended to form the new nose, was taken from the brow as usual. When such cases are unsuccessful, the failure is generally attributed to deficient circulation in the flap. Dieffenbach, however, thinks on the contrary that the chief danger lies in the flap receiving too much blood, and engorgement taking place, and for this purpose he advises that the pedicle should not be left too broad, under the idea that too large a supply of arterial blood may be conveyed to the piece of transplanted skin.

M. Blandin, under this impression, adopted in the present case a suggestion of M. Lisfranc, which consists in continuing the incision on the left side as far downwards as possible, by which in all probability one or two more arterial twigs were divided than necessary. One advantage derived from this proceeding is the smaller amount of constriction from the twisting of the pedicle, which was the object M. Lisfranc had in view in recommending the prolongation of the incision. The case reported by M. Blandin proved, however, unsuccessful, the entire flap of skin, which was to form the new nose, having become sphacelated on the second or third day after the operation. The results of this operation are at best very unsatisfactory, but when its performance is required we recommend that the pedicle should be left as broad as possible, and as little separated from its connexions as is compatible with leaving the neck of the flap unconstricted by twisting.

RESULTS OF THE OPERATION FOR STRANGULATED HERNIA. By BOYER and MANEC.

In the hospital practice of MM. Boyer and Manec, since the year 1833, fifty-eight operations for strangulated hernia have been performed, the results of which are interesting as regards the propriety of employing *taxis*. Thirty of these cases were operated upon by M. Boyer. From 1834 to 1839, M. B. did not proceed to the operation, till prolonged attempts at reduction had been made: during this period, *nine* cases were operated on, of which *eight* died and *one* recovered. From 1839 to 1843, he employed the *taxis* to a much more limited extent—*seven* cases were submitted to operation, of which *four* died and *three* recovered. From 1843 to 1846, he had almost entirely abandoned the use of the *taxis*, and out of *fourteen* cases on which he operated, *four* died and *ten* recovered. M. Manec, on the contrary, during the same time, placed little reliance on the *taxis*, and uniformly proceeded almost at once to the performance of the operation. The results of this practice were, that of *twenty-eight* cases operated on, *two* died, and *twenty-six* recovered.

The practical deduction to be drawn from these statistics is, that the employment of the *taxis* is productive of much harm. No statement, however, is made as to the results of the cases, which were successfully treated by the *taxis*. To judge fairly of the good or evil, resulting from the attempts at reduction, the entire number of cases of strangulated hernia admitted into the hospitals should be given: and we doubt not that in such an aggregate of cases, the number of recoveries would be greater, where the *taxis* is moderately and judiciously applied, than where the operation is uniformly at once performed.

The conclusions drawn by MM. Boyer and Manec are, first, that the operation for hernia, performed at an early period, and before symptoms of peritonitis have declared themselves, is almost free from danger; and 2d, that peritonitis never occurs subsequently to the operation, if it has not been present before its performance."—*Revue Medico-Chirurg.*, Feb. 1847.

TRAUMATIC HERNIA OF THE TESTICLE, COMPLICATED WITH ADHESIONS.
By MALGAIGNE.

In the same journal from which we extract the last, M. Malgaigne gives the history of two cases of this nature :—

Boyer, in speaking of wounds of the scrotum, says—"It sometimes happens, that the coverings of the testicle retract, and leave the organ almost entirely uncovered. The surface of the testicle then becomes covered by granulations, giving rise to a thin pellicle, which comes to take the place of the natural integument." (*Maladies Chirurgicales.*) M. Malgaigne, however, properly objects to leaving the reparation to nature, as being tedious and uncertain, and recommends the practice, which he followed in the two cases which he relates, of replacing the testicle, and uniting the integuments over it by means of sutures.

The first case was one of cystic tumour, situated in the lower part of the spermatic cord, which M. M. removed by excision, in which the tunica vaginalis was laid freely open. In a few days protrusion of the testicle took place through the wound, which increased till the entire organ projected through the wound. Alarmed by the unfavourable appearance of the case, M. M. consulted two of his colleagues, who recommended that the mass should be allowed to granulate and cicatrize without surgical interference. As cicatrization advanced, however, the protrusion became more prominent and constricted. The substance of the testicle protruded through the ulcerated tunica albuginea, forming what is commonly known by the name of *fungous testicle*.

Unfortunately M. Malgaigne appears to have been ignorant of the method, proposed some time before by Mr Syme, of bringing the integuments over the testicle in such circumstances, as he states that Boyer was the only author in whom he could find any statement as to the results of protrusion of the testicle.

Proceeding, however, with the same intention as Mr Syme, he detached the adhesions all around the protrusion, and, forcing the testicle within the scrotum, attempted to unite the integuments over it by means of the twisted suture. The tension was such, however, as the patient was unable to bear, and it was necessary speedily to remove the needles. The adhesions all around the organ were now divided by the knife; and at the bottom of the cavity, into which the testicle had been pushed, a deep crucial incision was made, into which the testicle was now made to recede. The sutures were re-applied, and ultimately adhesion of the integuments took place, leaving the testicle well covered.

The second case, which is related, occurred a few months afterwards.

A workman fell from a height of six feet astride across a beam, by which he sustained a wound of the scrotum, which, in eight days afterwards, was healed. Ten days afterwards inflammation in the situation of the wound supervened, and an abscess formed. The integuments sloughed, and an opening took place, through which the testicle protruded. After the protrusion had become covered by healthy granulations, M. Malgaigne proceeded in the same way, as formerly, to separate the adhesions. After which, pushing his finger into the cellular tissue behind, he formed a cavity, into which the testicle was made to recede. Sutures were applied, and adhesion was obtained.

The first of these two cases especially is interesting, as showing the effect of allowing cicatrization to take place over a protruded testicle. Instead of the edges of the scrotum contracting, and the organ becoming, according to Lisfranc, gradually retracted within its natural coverings, the protrusion became from day to day only more prominent and constricted.

The method proposed and executed by Mr Syme some time previous to the occurrence of the cases related by M. Malgaigne, appears to be much more practicable and safer of execution than the proceeding above related. An elliptical incision is made around the fungus, and extended upwards and downwards; the integuments are raised and brought over the growth, and are re-

tained in this situation by sutures. This is accomplished with great facility, and with much less disturbance of the surrounding parts than in the operations above related.

MR WILDE ON THE SYMPTOMS AND TREATMENT OF ENTROPION AND TRICHIASIS
IN THE UPPER LID.

When we look at a healthy eye, on a level with our own, the cilia of the upper lid should project so much forwards that we should see but the dark line of fringe which their points form. If the eye be directed downwards, and the lid falls a little, the upper surface of these hairs comes into view. The eyelid forms two folds; the superior, large, flexible one, which is carried inwards by the action of the levator palpebræ; and the inferior, lesser one, which is generally about three-eighths of an inch deep, and to which the integuments are intimately attached, as exhibited in the left eye of the accompanying wood-cut.

When the lid drops or is closed by a voluntary effort, the superior, large, loose, and flexible fold is obliterated. Now in persons labouring under the incipient entropion, long before any inversion or distortion of the lashes has taken place, the lower fold becomes preternaturally developed, as seen in the right eye of the foregoing illustration, made from a drawing of a young woman, who, at the time it was taken, had been labouring under the disease for four years previously. And, moreover, if we examine such an eye in profile, we shall find that this fold has become not only more developed, but that its curvature, which, in the normal state, is but slightly convex in the infero-superior direction, has become preternaturally increased, so as to present the form shown in this representation, which was taken from a female who was not at the time (twelve months ago) at all conscious of her condition, as the lashes which, with the fold of the lid, were bent very much downwards, had not then quite touched the cornea. This vicious bend of the inferior fold of the lid is often of years' standing before it is perceived. When we evert the lid, the cause becomes manifest; immediately behind the line of the Meibomian glands we perceive a deep curve or hollow in the cartilage running along the entire length of the lip.

This sulcus or depression in the cartilage has invariably a shining, tendinous appearance, and several conjunctival vessels may be seen running into it; and as the disease advances, it has the appearance of a deep and rugged cicatrice, not unlike those marks which we perceive upon the inner surface of a lid, which has been cured of granulations. All this time the conjunctiva lining the cartilage may be perfectly smooth and scarcely more vascular than natural, while the tissues of the eye itself may never have suffered from disease. Chronic ophthalmia is, no doubt, at times a cause of entropion, but, we believe, a much less frequent one than is generally supposed. We have lately seen several cases of inversion, both in the incipient and fully developed stage, in which there never had been any inflammatory affection of the ocular tunics. It is scarcely necessary to add, that when the disease is fully established, this internal sulcus becomes more deeply developed. The subjective symptoms are but very trifling; the patient complains of little or no uneasiness until one or more of the lashes touch the globe. At times, persons labouring under the incipient form complain of a tightness of the lid, and say that when they move it they feel as if it scraped the eye. This tightness, however, is not caused by any shortening of the transverse length of the lid, but by its increased curvature from above downward.—*Dublin Quarterly Journal of Medical Science*, February 1847.

M. KUN'S NEW INSTRUMENT FOR THE DIAGNOSIS OF TUMOURS.

M. Kun, Professor of Physiology in Strasbourg, presented to the Medical Society of that city, an instrument, the application of which is likely to produce the most beneficial results in the diagnosis of various kinds of tumour. It

consists of an exploring needle, having at its extremity a small depression with cutting edges. On plunging this instrument into a tumour to any depth, we can extract a minute portion of the tissue of which its various layers are composed. In this manner a microscopic examination of the tumour can be practised on the living subject, and its nature ascertained before having recourse to an operation. We have proved the utility of this method of diagnosis on three occasions, and seen conscientious practitioners renounce an operation previously determined on, when the cancerous nature of the tumour has been demonstrated by the microscope.—*L'Union Medicale*, 1 Avril 1847.

EXCISION OF THE HEAD OF THE FEMUR. By PROFESSOR TEXTOR
OF WURZBURG.

In a letter to Von Ammon, Professor Textor says that he performed excision of the head of the femur on the 14th of January 1845, with the most perfect success in the case of a boy aged 10 years, labouring under caries and spontaneous luxation of the hip-joint. Only two similar cases are on record, one by White (1818), the other by Fergusson (1st March 1845). Textor and Fergusson cut through the bone below the small trochanter. The patient of the former is now walking about without crutches.—*Journal für Chirurgie und Augenheilkunde*, 1847, Bd. VI. p. 382.

PATHOLOGY AND PRACTICE OF PHYSIC.

CLINICAL NOTES TAKEN IN THE FRENCH HOSPITALS.

DIAGNOSIS OF INFLAMMATORY SOFTENING OF THE STOMACH.—A woman, aged 37 years, was received into the clinical ward of M. Chomel for a chronic stomach affection. According to her statement she has vomited without ceasing for eighteen months, a circumstance which contrasted remarkably with her general robustness and good complexion. She had fever, and, from time to time, vomiting. The matters vomited were greyish and flocculent, not presenting the blackish or coffee coloured appearance seen in cancer of the stomach. M. Chomel could not admit the existence of cancer, because neither palpitation of the epigastrium, nor the *embonpoint*, neither the appearance of the skin or countenance, was in accordance with such a proposition. He consequently diagnosed a gastritis of a very serious nature. He had occasionally seen in such cases a zoomotic hallucination, the existence of which was at first denied by the patient. She acknowledged to the sister of the ward, however, next day, that she had seen cats, dogs, and other animals pass before her bed. She died in eight days; and, on dissection, a considerable softening of the larger curvature of the stomach, evidently inflammatory, was discovered.

POST-PUERPERAL PLEURITIS.—In the women who are just now delivered pleurisy is ordinarily purulent, and, in most cases, terminates in death. It is different, however, when the pleurisy exists before delivery, even although it be exasperated afterwards. In such cases the disease runs its usual course, and yields to common remedies.—*Rayer*.

WHITE OXIDE OF ANTIMONY.—This medicine is very little employed in Paris. M. Rostan, however, had lately to treat a very severe case of pleuro-pneumonia in a woman, in whom bleeding was inapplicable, whilst the tartrate of antimony caused such violent vomiting that he was obliged to renounce its use. He had

recourse to the white oxide of antimony, in the dose of 15 grammes daily (half an ounce), and found it very beneficial, having been well tolerated by the stomach, and the disease conducted to a favourable termination under its influence. Although insoluble, this preparation of antimony is absorbed, but in less quantity than the tartrate. Hence, in exceptional cases, it has been found serviceable.

EARLY SYMPTOMS OF VARIOLA.—One of the most common precursory symptoms of variola, and one not met with in rubeola or scarlatina is lumbar pain. The first pustules are usually observed on the upper lip, cheeks, and forehead, and frequently on the velum palati, before any other place. Hence these parts should be examined when we have reason to expect a febrile eruption. The palatine pustules run their course more rapidly than others, and arrive first at maturity.

CINCHONINE.—When individuals not affected with fever take twelve or eighteen grains of the sulphate of cinchonine, they experience a general lassitude, turning of the head, a difficulty or impossibility of walking or of standing upright, a marked lowering of the pulse and sleeplessness, but without agitation, deafness, or tinnitus aurium. These two last symptoms are common when the sulphate of cinchonine is administered under the same circumstances. These facts show that the sulphate of quinine is an hyposthenic remedy, and authorize its prescription in inflammatory diseases.—*Briquet*.

RECURRENT DISEASES.—Diseases which return, such as erysipelas, neuralgias, dermic affections (variola, varioloid), pneumonias, gastritis, arthritis, &c., become less intense the oftener they are repeated. Thus a second or third pneumonia, pleurisy, or erysipelas, is less dangerous than the first.—*Chomel*. This proposition can only be considered of partial application.

TREATMENT OF TYPHOID FEVER.—M. Rayer obtains excellent results from the daily employment of tepid baths in typhoid cases. Under the influence of this treatment the pulse loses its frequency, and the febrile heat falls, the tongue becomes debarrassed of its coating, and the head feels clear. M. Briquet continues the employment of emeto-cathartics with almost constant success. M. Rostan gives quinquina towards the period of depression and of stupor.

GOOD EFFECTS OF CAMPHOR IN INCONTINENCE OF URINE.—A woman aged about forty years, was received into the Hotel Dieu under M. Guerard, to be treated for incontinence of urine and pulmonary emphysema. The first infirmity appeared to depend upon a phlogosis of the neck of the bladder. The urine passed involuntarily both night and day. The asthma was treated with acetate of ammonia (*un gros et demi* every twenty-four hours). The emphysema became much ameliorated, the respiration more easy, and the asthmatic attacks, after a few days, ceased. The incontinence of urine, however, continued, for which enemata were ordered, containing 4 grains of camphor, dissolved in yolk of egg, and mixed with a little water, so that it might be retained in the rectum. This treatment alone sufficed to remove the incontinence for some time. In a few weeks, however, it returned again, and was once more removed in the same manner. At present the enemata are continued as a prophylactic, and the cure seems to be permanent.

DIABETES MELLITUS.—There exist three methods of recognising practically the presence of sugar in urine. The first is that of Trommer, which consists in first placing the urine in a large tube, and adding to it a solution of the sulphate of copper until the liquid has a slight bluish tinge. A small deposit of phosphate of copper is usually formed. A solution of potash is then added in

excess, which produces a precipitate of the hydrated oxide of copper, which if there be sugar present is redissolved in the excess of alkali, and forms a blue solution. On gradually heating the mixture up to the boiling point, there is formed, if sugar be present, a precipitate of the red sub-oxide of sugar. The second method is that of M. Cappezzuoli of Florence. Place the urine in a conical glass, add a little of the hydrated blue oxide of copper, and then render the solution alkaline by the addition of potash. If sugar be present, the mixture assumes a red colour, and in some hours the border becomes yellow. This yellow coloration gradually extends through the whole fluid by the reduction of the oxide to the condition of sub-oxide. The third method is that of Mr Moore of Birmingham, which has for its object the conversion of colourless sugar of the urine (glucose) into brown sugar under the influence of a caustic alkali. Place in a small tube two drachms of urine, add half the volume of liquor potass, and boil the liquid for one or two minutes. If the urine contain sugar, the mixture which was previously pale, assumes an orange-brown or lustre tint, according to the proportion of sugar present. If there be no sugar, caustic potash, instead of deepening the colour will, on ebullition, render it paler. This last process is the one followed at present in the hospital wards of Paris. It can be performed with the greatest facility during the course of the visit, and at the bed side, in private practice. All that is necessary is a small tube, a little bottle containing potash, and a spirit lamp. The degree of coloration produced gives an approximative idea of the amount of sugar in the urine.—*Annales de Thérapeutique*, Mars and Avril 1847.

CASE OF CONGENITAL DEFICIENCY OF ONE KIDNEY, WITH GRANULAR DEGENERATION OF THE EXISTING ONE. By GEORGE BUSK, Surgeon, &c.

A gentleman of literary occupations, but accustomed to much exercise, enjoyed good health till within three years of his death, which occurred at the age of twenty-seven. He then became bloated and pale, incapable of so much exertion as formerly. He complained of languor and lassitude, his legs became anasarcaous, and he was troubled with epistaxis, to which he had been subject from childhood, and there was vomiting. In this condition he consulted Mr Culy of Aylesbury. Latterly hemorrhage from the mouth as well as from the nose occurred, which became copious and almost continuous. The urine was acid and albuminous, with a specific gravity of 1.010. The strength became much reduced, and, a few days before death, the under surface of tongue and internal lining of the cheeks became gangrenous.

The principal lesions discovered on dissection were, enlargement of the liver one-third beyond its natural size. Its colour was pale brown, did not grease the scalpel, but, under the microscope, presented a large quantity of oil. The spleen was soft and pulpy, and contained, immediately beneath the capsule, three or four purulent looking collections about the size of a large pin's head. No trace of the left kidney or supra-renal capsule could be found on the most careful search. The right kidney was about two inches in length, by one and a quarter in width, and presented externally a contracted or corrugated aspect, and the roughened capsule could not be stripped off to any extent without laceration of the substance of the gland. The colour of the kidney was very pale, speckled with white, and on a section scarcely any distinction of substances was observable. The whole presented a condensed, cicatriform aspect, of a semi-transparent hue, sprinkled with small opaque specks, and, in the remains of the tubular portions, marked with white striæ, obviously filled with a dense white material. The pelvis was remarkably small, and the mammillary processes appeared also to be unusually few in number. Examined microscopically, the tubuli uriniferi were found to be in parts indistinct or obliterated, and in others to be filled with a semi-opaque white granular material, soluble, or rendered transparent by acetic acid, and presenting none of the characters of

oil, very few globules of which were observed in any part of the gland. This granular material caused the appearance of white striæ previously described.

Mr Busk observes that the pathological condition of the kidney, and the presence of albumen in the urine, are clearly in this case not to be referred to the secretion and deposition of oily matter in the tubuli uriniferi. He thinks chronic adhesive inflammation of the venous plexus and tubuli uriniferi, causing obliteration of the former, and contraction and obliteration of the latter, to have been produced, or their infarction with solid albuminous matter. The obliteration of the venous capillary plexus he believes to originate in the formation in those vessels of fibrous clots, and to be one of the most frequent causes of chronic albuminuria and granular degeneration of the kidney. He considers that the presence of oil in the tubuli uriniferi, although frequent, has no direct or necessary influence in the production of albuminuria, because fatty kidney may exist without albumen in the urine, and the latter without the former. He is inclined to believe that oil when secreted in the kidney is concomitant with some affection of the liver, and that the former organ acts vicariously, and eliminates some of the carbonaceous matter that should pass off by the latter, or occasionally from the lungs.—*Medico-Chirurgical Transactions of London*, vol. xxix. 1846.

ON PERCUSSION OF THE UTERUS, AND ITS RESULTS IN THE DIAGNOSIS OF PREGNANCY. By PROFESSOR PIORRY.

The plesimetric percussion of the uterus, when it is a little developed, is, for the most part, only practicable on the anterior, superior, and lateral regions. Posteriorly nothing can be heard but the sonoriety of the digestive tube, which is much augmented when the enlarged uterus presses the viscera backwards. When the organ is empty, and it is neither displaced nor increased in volume, percussion discovers no dullness corresponding to it in the abdomen above the pubes. It is necessary to seek for this behind the pubes, and previously to cause spontaneously or artificially the evacuation of urine. Without this precaution the dullness caused by the distended bladder will certainly be mistaken for that of the uterus. For a long time M. Piorry neglected percussion of the uterus over the pubic symphysis, forgetting that the layer of bone in this situation was no thicker than that of the sternum. It is well known that this last bone is no obstacle to percussion, nor would the pubes be any, were it not for the layer of fat, often very thick, which exists there. This renders mediate percussion indispensable. It was in the spring of 1845 he endeavoured to explore the uterus by percussion on a level with the pubes. The following is the method to be employed :—

Percussion of the Uterus on a Level with the Pubes.—The genitals being covered with a linen cloth, the pleximeter is directed in the course of the median line from the umbilicus to the vulva, and then laterally along two oblique lines, upwards and outwards along the groins. A fourth line should then be followed, running transversely between the two anterior and superior iliac spines. A fifth line parallel to the preceding is drawn a centimetre above the superior border of the pubic bone. Lastly, percussion should be made comparatively on the right and left sides of corresponding parts of the abdominal walls. The pleximeter should be applied now deep, now superficially, and the blow given by the finger should be alternately light and strong. When percussion is made on the pubes, it is necessary to depress the soft parts with the pleximeter forcibly, and the shock should be rather strong than feeble.

By following this method, M. Piorry has arrived at the following results in more than a hundred women. Above the pubes no dullness or resistance caused by a solid body can be detected. When, on the other hand, the ivory pleximeter is applied strongly on the symphysis pubis, and is forcibly struck, there is found a marked dullness and resistance, which evidently corresponds to

the superior part of the uterus, as is proved by its absence in men. On percussing laterally, and following the lines indicated, and marking exactly with a pencil on the linen cloth points where the dullness is separated from the sonoriety of the intestine, an irregular circle is formed, representing the superior part of the uterus. The fundus of the organ, however, is much nearer the sacrum than the pubes, and the dullness is distinguished through a thick layer of intestines.

Results of Percussion in the Anormal Developements of the Uterus, and in Pregnancy.—When the uterus is increased in volume, or inclined to one side, the results of percussion are not the same. There is an augmentation in the extent of the space where dullness is heard, and a diminution in the dimensions of the pubes where sonoriety usually exists. The changes which the uterus presents in the different stages of pregnancy, gives a correct idea of what takes place during the development of other uterine tumours. It is only the approximation, and not the absolute dimensions of the organ, however, which can be arrived at.

Towards the end of the second month the curved line which limits the dull sound below the pubes is raised a few millimetres, and the dullness is evidently enlarged generally. Percussion above the pubes, however, produces no diminution in the sonoriety, and no sense of resistance to the finger. In two months and a half superficial percussion elicits nothing but deep percussion, directed in the axis of the outlet, causes an obscure sound corresponding with a solid organ. At the same time the whole space corresponding to the pubes is very dull. These results are obtained long before an examination by the hand above the pubes can determine any enlargement in the pelvic cavity. They become more evident, if the uterus be raised with the finger carried into the vagina. These signs must be considered of great importance when our object is to recognise pregnancy in its early stage. From the third to the eighth month, when the enlarged womb can be felt with the hand, its exact size can be traced, forming a circle more and more extended by means of percussion. The circumference is limited inferiorly and laterally by the sonoriety of the cæcum on the right side, and by that of the sigmoid flexure of the colon on the left; laterally and superiorly by the sounds caused by percussion of the colon and small intestine, and above by those of the intestines and stomach. Almost always the liver and spleen may be recognised by the characters on percussion which are peculiar to them. They do not come in contact with the dilated uterus, being separated by loops of intestine which give rise to sounds in relation to their contents. In the last stage of pregnancy the spleen, liver, and heart are pushed towards the thorax, from whence, doubtless, arise the unpleasant symptoms experienced by women in the advanced period of gestation.

Measurements of the Uterus in Pregnancy.—Towards the third month the uterus is raised above the pubes two or three centimetres. At the fourth month the fundus of the organ is situated midway between the umbilicus and pubes. In the fourth month and a half it has reached the umbilicus. At the fifth month it passes the umbilicus two or three centimetres or more. At the sixth month it is elevated another two or three centimetres, and at the eighth is still further and proportionally increased. At the eighth and ninth months it approaches the margins of the ribs, and pushes upwards the viscera and diaphragm. All these measurements are subject to great variations, which correspond to the comparative dimensions of the abdomen, the size of the pelvis, and dilatation of the intestines, and to the degrees of firmness or flaccidity of the abdominal walls, to the amount of liquor amnii, &c. &c. In general, the height of the uterus in the different stages of pregnancy is given too precisely, and sufficient attention is not paid to the variations in its transverse diameter. The extent of the latter is not less important, with a view to determining the period of pregnancy, than the elevation of the womb. It is almost impossible, in the majority of cases, to obtain an exact idea of the transverse diameter of the uterus by palpation of the abdomen. It is only in women

in whom the abdominal parietes are very soft that the hand can seize the fundus in a manner sufficient to determine its globular form. By this proceeding also very vague notions are obtained of the actual size of the uterus.

Transverse Dimensions of the Uterus in Pregnancy.—The transverse dimensions of the uterus, at the different periods of pregnancy, correspond from the fourth to the end of the eighth month, to the height at which this organ is elevated in the abdomen in such a manner, that if it presents nine centimetres from above downwards, it offers also nine centimetres from side to side. At the commencement of the fourth month the width is greater than the height, because the uterus at this period presents a very slight prominence above the pubes. Towards the end of gestation, on the contrary, it appears to be longer than it is broad; in every case the form which the pleximeter permits us to mark out is spheroid and sometimes ovoid. At the centre of the sphere the uterus is in direct contact with the abdominal walls, whilst, towards the circumference, it is separated from them by intestinal loops.

It is generally believed that the uterus, when developed under the influence of digestion, is situated in the middle of the abdomen, where it rises. But it is frequently placed towards one side, generally the right. The sound proper to the intestines then extends over a larger space of the abdomen opposite to that towards which the organ is inclined. At whatever epoch of pregnancy the abdomen is examined, there is always found that a space, more or less large, in the iliac, is occupied by the cæcum, and by the sigmoid flexure of the colon.

Percussion of Parts contained in the Uterus.—Not only can percussion determine with certainty the form, dimension, and relations of the pregnant uterus, but it enables us to distinguish through the abdominal walls and uterus the contained parts, and to circumscribe these in their turn by means of the sonoriety, elasticity, dullness, or hardness presented by these parts. Certainly the thickness of the uterus offers no obstacle to the tactile and acoustic sensations produced on percussing the foetus, the fluid or the foetus. This theoretic consideration has been completely confirmed by practice. In more than fifty women in whom the uterus was distended by the product of conception, it has been easy to limit the figure of the solid parts, and those more or less soft of the uterine contents.

Anatomical Considerations relative to Percussion of the Foetus.—The foetus presents the same parts as the body of man, but in smaller proportions; and their organization, except as regards softness, is analagous to what it is after birth. The lungs, and the digestive canal, however, do not contain gas during intra-uterine life. Hence, as regards percussion, a notable difference, which renders the determination of the different constituent parts of the foetus much more difficult.

Percussion of the Foetus, and of the Placenta.—On the bodies of infants born dead, percussion can distinguish the soft parts on the one hand, and the bones of the cranium, spine, and limbs on the other. That the different parts of the foetus can be determined long before the termination of pregnancy, is proved by the following case:—

On the 11th of October 1845, a girl aged 18 years, was seized during M. Piorry's visit to the ward, with labour pains. She had never felt the movements of the foetus, and the menses had been suppressed three periods. The foetus was at the vulva, and was shortly expelled, followed by the placenta. The last was ten centimetres long, nine broad, and two or three thick. The different measurements of the foetal head varied between four and five centimetres. After having attended to his patient, M. Piorry thought it possible to place the parts expelled in analogous circumstances, so far as percussion was concerned to those existing before birth. The foetus and placenta, therefore, were placed in a basin containing water, the whole was covered with a towel folded into thirty-two and moistened, so that the pleximeter could be applied to various parts of the surface. Percussion was practiced with

the greatest care, and it was extremely easy to distinguish. 1st, The placenta (moderate dullness, with resistance to the finger); 2d, The liquid (complete dullness, of a different character from the preceding, and absence of resistance); 3d, The head of the fœtus (very marked dullness, with a dry and osteal sound. There was also distinctly heard a metallic sound, having relation to the copper basin, situated below the head). These facts were confirmed five or six different times. Drs MègeUet and Labourdelle, *Internes* in 1845, M. Bonnet and eight or ten physicians or students obtained the same results, so that it is actually demonstrated that the placenta and cranium of a three or four months fœtus may be detected through a cloth folded to about the thickness of the abdominal and uterine walls, and placed in a fluid analogous to the liquor amnii.

At a more advanced period in pregnancy, and towards the sixth month, the same results may often be obtained. On carefully percussing the uterine surface, it is easy to circumscribe the limits of the fœtus and of the placenta. Generally there is found on the left side, and of a circular form, a dullness more remarkable than elsewhere. The resistance to the finger is there more developed, than at other places, and resembles nearly the sensation produced on percussing the thigh. To the right side, and at some distance from this circular space, a greater dullness is met with, four or five centimetres in length, with more marked resistance to the finger of about two centimetres. The rest of the surface which corresponds to the uterus, gives rise to another shade of dull sound, less distinct perhaps, and over which the pleximetric elasticity is completely *nil*. In a small number of cases these signs are discovered on the opposite sides to those mentioned.

Practical Applications of Percussion in Pregnancy.—Position of the Fœtus.—The parts within the uterus, which M. Piorry has been able to detect in a clear manner, are 1st, the nates; 2d, the feet; 3d, the liquor amnii; 4th, the cranium, or at least the head. It is by marking with black lines the circumference of the uterus from one part to the other, and the spaces which present different shades of dullness or sonoriety on the uterine surface, that we are enabled to trace the figure of those parts of the fœtus, near the abdominal walls. Up to the present time (January 1847), M. Piorry has only had occasion to detect by percussion, the regions of the fœtus corresponding to the abdominal walls, in the first and second positions of the head. Other positions of the child within the uterus may be certainly recognised in the same manner. For this purpose it is sufficient to determine the points of the uterus to which in the same position such and such parts of the fœtus correspond. In presentations of the nates, and of the feet, the head should correspond to the uterine surface, and consequently percussion ought to discover a dull sound and an osseous hardness, where the cranium is placed. In other positions, percussion of the abdominal surface of the uterus will probably give other useful results.

Can we recognise the Placenta by Percussion of the Uterus?—M. Piorry has not yet detected the placenta by means of percussion. In certain cases it is possible to mistake the dullness caused by the placenta, for that produced by the nates. But this must be rare, because the insertion of this organ is almost always behind, under the ribs, and at points of the uterine surface which cannot be reached by percussion anteriorly. Auscultation by enabling us to hear the placental murmur, over a space very dull on the uterine surface, will contribute to the elucidation of the diagnosis. On the other hand, the situation of the nates and feet will enable us to judge approximatively of the position of other parts of the fœtus, and by studying this, we may be guided in our search after the cardiac murmurs.

Percussion should not be practised during uterine contractions. In the intervals, however, there is no inconvenience to be expected. The size of the uterus is increased where the quantity of liquor amnii is great, and to arrive at the dullness of different parts of the fœtus, it is necessary to depress the pleximeter deeply.

When two or more foetuses are contained in the uterus, it is evident that percussion ought to enable us to detect them.

ON PNEUMONIA IN CHILDHOOD. By FRIEDLEBEN OF FRANKFORT.

According to the general belief, the development of the brain being greatest proportionately in the first period of life, its tendency to disease is strongest at the same period, while the development of the respiratory organs being then still imperfect, disease of these is more rare. Exact observation, however, has led our author to a different opinion; namely, that acute affections of the respiratory organs are the most frequent diseases of childhood, the contrary opinion owing its origin to these being sometimes masked by cerebral symptoms. Of these diseases, pneumonia and bronchitis stand in the foremost rank. Of pneumonia, Friedleben treats under the following heads.

Pathological Anatomy of the Lungs.—The same varieties in the form of anatomical alteration are met with as at later periods of life. The *engouement* was uniformly attended by red hepatization, or by the grey, with purulent dissolution. Red hepatization appeared with much constancy. Grey hepatization was never seen without the red, and formed the centre of the latter. Purulent dissolution appeared but too often, and was always accompanied by grey and red hepatization, it being in those cases only in which the suppuration was limited to a vomica, that no other anatomical alteration but the red hepatization was found around the pus. Metastatic abscesses were found but in one case, consequent on sudden and complete drying up of impetigo, with separation of the scabs. Induration was seen only in emaciated infants still at the breast, especially in such as had laboured under chronic intestinal affections, and tuberculization. Splenization was, in all cases, a sequel of typhus abdominalis. In opposition to the statement of several observers, who have taught that this alteration is the mere result of mechanical hyperemia, or stasis, Friedleben insists that it is a consequence of true pneumonia; for splenization was met with in those cases only of typhus abdominalis, which were attended with pneumonic symptoms during life; and when these were wanting, the post-mortem examination showed only a mere stasis. Mechanical pressure upon the air vesicles, has the effect of producing carnification, but not splenization. It is to be remarked, however, that splenization was confined to those cases, in which the pneumonia arose at the period of the height of the typhus, while the pneumonic affections that arose in its first stage, or in the stage of convalescence, gave rise to true hepatizations. Thus the conclusion, that the typhus crasis excludes true synochal inflammations must be limited to its second or most developed state. As regards the seat of the disease, pneumonia is lobar, or lobular. Lobar pneumonia most commonly attacks the lower lobes, either on both sides, or on the left side only: and when both sides are affected, the disease on the left side is always more diffused, and in a more advanced stage. Complete inflammation of all the pulmonary lobes was never observed by Friedleben. By far the majority of the inflammatory affections of the lungs belongs to the lobar form; and the lobular form occurs only as a complication in other diseases, as in typhus abdominalis, pleuritic effusion, chronic diseases of the abdomen and the like.

Contemporaneous Anatomical Alterations of other Organs.—In by far the greatest number of cases of pneumonia, no other morbid alteration was found, or none, at least, which did not result immediately from the pneumonia; of this latter description are the emphysematous condition of the lungs, attendant on intense diffused hepatization; the anæmic state of the uninflamed portion of the lungs; fibrous clots nearly constant in the cavities of the heart; cerebral hyperemia never absent when the pulmonary hepatization was seated in the upper lobe or lobes; sanguinolent-serous effusion in the lateral ventricles of the brain, observed on two occasions to the extent of about two drachms, in connexion with enormous cerebral hyperemia, subsequent to grey hepatiza-

tion, with purulent dissolution of the lungs ; and lastly, the hyperemic condition of the liver, inducing the like condition of the spleen, and in some cases even of the kidney. As respects anatomical alterations, independent of the pneumonia, Friedleben found the following :—The other respiratory organs ; laryngo-tracheitis exsudativa ; it is worthy of remark, that whenever the affection of the air-passage was limited to the larynx, there was no pneumonia, but when the trachea had been attacked, the pneumonia was wanting on only one occasion ; bronchitis was a frequent complication, and was never absent when the pneumonia was lobular and of short duration ; pleuritis was met with in all its stages, but on the whole with much less frequency than in adults ; tuberculous degeneration was a very frequent appearance, whether arising from the pneumonia or giving rise to it ; pulmonary apoplexy was witnessed on one occasion only, at the edges of the upper lobes near the red hepatization of the lower ones ; melanotic deposits diffused over both the lungs, occurred in a child eight months old, with red hepatization of the lower lobe of the left lung, the development of fat in the body being excessive, while that of the muscular tissue appeared to be defective ; dilatation of the bronchi was constantly found within and around indurated portions of the lungs. In the organs of circulation the foramen ovale was not unfrequently found open, even in children of two or three years of age ; cartilaginous condensations of the mitral valve were also observed. In the brain arachnitis was the only cerebral affection found combined with pneumonia, and this in only one case, that of a child five years old, in which the pneumonia ran an exceedingly rapid course. In the abdominal cavity, typhus abdominalis ; of this complication already alluded to, it is to be remarked that it was never present in the first year of life ; that in the second year, the attendant synochal pneumonia was constantly lobular, while above that age it was lobar ; simple inflammation of Peyer's glands was often witnessed in connexion with lobular pneumonia ; lastly, scrofulous swelling and degeneration of the mesenteric glands.

Nosology of Pneumonia—Lobar Pneumonia.—In order to render the account of the symptoms more clear, Friedleben found it advisable to divide them into four stages ; 1. Commencing stage—short breathing, hot skin, accelerated pulse, increased thirst, dry nose, are the first symptoms ; when the pain is considerable, the breathing becomes abdominal. Sometimes, at this stage, convulsions of the extremities, and even of the facial muscles, vomiting, and constipation, give the disease the aspect of a primitive encephalic affection. In such cases, the dullness of the sound on percussion is the only safe guide. On auscultation, we hear in most cases merely coarse breathing and dry rales ; distinct inflammatory crepitus was but of rare occurrence. In the majority of cases, however, the first stage is far from being thus fully developed, the fever being of but moderate intensity, the remissions of long duration, the acceleration of the respiratory movements scarcely sensible, so as to be disregarded not only by the parents, but also by the medical attendant. 2. Advanced stage or height of the disease (red hepatization). Dull sound on percussion, and bronchial respiration, were never absent ; sometimes there was also a dry whistling (feifende, sibilant) rale. Among the symptoms here, it should be remarked that while the upper half of the chest rests almost motionless, the lower half, particularly from the seventh to the ninth rib, is forcibly elevated outwards by inspiration ; and this symptom is met with in every case of pneumonia, whatever be the portion of the lung affected. Neither cough nor pain are constant symptoms—the cough, when present, is always dry and sometimes painful—and when pain is present, it is remarkable that the little patients always refer the seat of it to the scrobiculus cordis. It has been stated, that the breath of children affected with pneumonia is hot, but Friedleben found this was not the case in the great majority of cases, even when the inflammation was remarkable for its extent and intensity. But the skin of the thorax uniformly felt preternaturally hot to the finger. In general, the little patient lies on the back. However incredible it may appear, even this stage of pneu-

monia may be overlooked, unless it be made a rule to examine the physical signs of the chest in every case of acute disease. 3. Stage of transitus (crisis veterum). When the red hepatization does not by its great extent cause the death of the child, it may pass into the stage of convalescence, in which case the decline of the physical and other signs takes place in the usual well known manner. The cough, when previously absent, now commences, and in most instances, without perceptible expectoration, since the child swallows whatever is brought up from the air tubes. One of the most favourable signs is the spontaneous discharge of mucus from the nose, even when the child is not lying on the belly. Lastly, red hepatization may be changed into grey hepatization, or the stage of suppuration. Sinking of the pulse, decrease in the heat of the skin, slight sopor and delirium, without essential change of the physical signs, intense shaking cold; lastly, the status nervosus of former physicians, or more properly the pyemic state, are the symptoms usually met with. In addition to these, there are to be met with, in not a few instances, hydrocephalic appearances, which, however, are shown by many *post-mortem* examinations to be dependent merely on hyperemia of the brain. Friedleben saw recovery after the symptoms of this stage had set in, in only two cases; and the fatality of the disease is the consequence of our mistaking the nature of the disease in its earlier periods. The following case illustrates the necessity for early and careful examination of the chest. A girl, four years old, hitherto healthy and robust, was treated for eight days by a physician. He took no alarm at what was apparently a febricula gastrica, as the little patient continued to play about the room during the whole day. But suddenly the breathing became laborious, the sensorium disturbed, the fever considerably increased. An examination of the chest was now made for the first time, and showed pneumonia of the right lower lobe. It was, however, too late, and in thirty-six hours more the girl was dead. The *post-mortem* examination exhibited not only grey hepatization and purulent dissolution, but even a commencing vomica—evidence enough of the length of time the pneumonia had been present. As to the modification of the symptoms produced by the several periods of childhood, Friedleben has made the following observations:—During the first year great restlessness, constant short crying, dislike of the nipple or of the suckling-glass, occasional vomiting, and relaxed bowels, are the signs of the first stage—in the second stage, the infant now takes the nipple or suckling-glass, and the skin becomes very hot—at this period the infant cries less than in the former stage, and falls frequently asleep, though he is awakened by the slightest noise. The third stage was constantly succeeded by convalescence or death; never by grey hepatization or suppuration. Induration was observed only once. During the next four years of life, the first stage is often overlooked, unless occasional convulsions or vomiting strike our attention. In the progress of the disease, hydrocephalic symptoms become often so prominent as to mask altogether the primitive and chief disease. It is to physical signs alone, then, that we owe a safe diagnosis, and the proper therapeutical indications. True inflammatory hydrocephalus is, according to Friedleben, of exceedingly rare occurrence, the effects of cerebral tuberculization being more frequent. The hydrops ventriculorum cerebri, subsequent to scarlatina, cannot be considered as the result of true encephalitis.

Lobular Pneumonia.—This form, as a primitive disease, was observed by Friedleben in the first year only. The onset of the disease is betrayed by a striking shortness of the breath, and violent abdominal respiration. Percussion and auscultation furnish but unsafe signs. Cough is never absent. The first stage was never examined, for in most cases it terminated directly with the death; in others it assumed a lingering course, and occasioned a fatal termination, by affording a substratum for tuberculous deposits, or by passing into perfect induration of the diseased portion.

Duration and Termination.—In the great majority of children affected with pneumonia, the first stage lasted for twelve hours, the second for three days,

the third from five to seven days, after which period decided convalescence commenced. The following case is however strikingly exceptional. A boy, five years old, who had played the whole day with his companions, and taken supper as usual, was seized in the night with headache and great heat; when a physician saw him next day at noon his consciousness was already lost, the respiration was stertorous, the arterial pulsation hardly perceptible, the extremities cold, the pupils dilated, the power of deglutition lost; on the same day at three o'clock the boy died. The *post-mortem* examination exhibited a partial arachnitis over the left hemisphere, and completely developed grey hepatization of the upper lobe of the left lung. In this instance, then, the fourth stage of pneumonia was thus developed within from eighteen or twenty hours. According to Friedleben's experience, it often happens that on the termination of pneumonia the little patients cut one or more of their milk teeth, and when of a more advanced age, even some of their permanent teeth.

Ætiology.—Heat and cold rank among the causes, and when pneumonia arises from the former cause, it is much more fatal owing to the greater liability to diffuse hepatization and suppuration. From the second to the fifth year is the period when the greatest predisposition to pneumonia exists; after that period the liability becomes much diminished. Among the diseases which dispose to pneumonia, are previous pneumonia, measles, laryngo-tracheitis exsudativa, arachnitis, typhus abdominalis, pleuritis, and pulmonary tubercles.

Recapitulation.—1. That true lobar pneumonia is one of the most frequent diseases of childhood. 2. That the anatomical alterations are quite the same as in adults, and that the so-called catarrhal pneumonia is not the proper pulmonary inflammation of childhood. 3. That there is little difference in the course of infantile pneumonia except in the greater liability to suppuration. 4. That pleuritis is not a common complication. 5. That in most cases both lungs are affected. 6. That though sometimes secondary, it is for the most part of primitive character. 7. That lobular pneumonia is of rare occurrence, and very uniformly of secondary origin. 8. That the pneumonia of infants has sometimes proved fatal in from twelve to twenty hours. 9. That percussion and auscultation are the only safe grounds of diagnosis. 10. That sneezing is the most favourable sign in the stage of resolution. 11. That on superficial examination pneumonia is often masked by the apparent symptoms of arachnitis, hydrocephalus and typhus abdominalis.—*Archives für Physiol. Heilkunde*, 1847, H. I. p. 9-31, and H. II. p. 167-186.

FORENSIC MEDICINE.

TRIAL OF DR CRONIN FOR MANSLAUGHTER.

The leading facts of Dr Cronin's case must be already well known to our readers. The indictment charged him with the manslaughter of Sarah Ellen Collyer, alleging, "that before the commission of the felony the deceased was sick and distempered in her body, and that the defendant undertook to treat her in a medical capacity for such illness, and in the course of that treatment administered to her a certain noxious, dangerous, and destructive compound, composed of spirit of ammonia, prussic acid, and bitter almond-water, and thereby caused her death." The facts of the case not being disputed, were briefly stated on the trial—namely, that the deceased being ill, applied to the defendant, and received from him a medicine made up in his own house, which afforded her relief; that he gave her a prescription purporting to be for the same medicine, which he told her might be made up at any chemist's—that this being sent to the shop of a chemist named Corfield, in Camden Town, a bottle was received from him, and that upon the deceased's having taken one table-spoonful of the mixture she immediately complained of illness, and died

in the space of a very few minutes, the death being clearly occasioned by prussic acid contained in the compound thus furnished. The prescription, as described by Corfield in evidence, directed two drachms of compound spirit of ammonia, sixteen drops of tincture of opium, four drops of prussic acid (Scheele's strength), two grains of compound strychnine powder, and six ounces of bitter almond-water. Not having the bitter almond-water, or the compound powder of strychnine, Mr Corfield sent first to Mr Morson's, of Southampton Row, and then to Mr Jacob Bell's, of Oxford Street, who supplied a 12 oz. bottle of bitter almond-water, and a prescription for the compound strychnine powder; and that having placed the other ingredients in a bottle, with the exception of the compound strychnine powder, and added six ounces of the bitter almond-water, he gave the bottle to the deceased's messenger. Mr Corfield admitted that he was entirely ignorant of the qualities of the bitter almond-water and strychnine powder, saying, that though he had been in business as a chemist for twelve years, he had never heard of strychnine powder or bitter almond-water being used in prescription. Mr Morson also gave in evidence, that though he had been in business for a great many years, he had never heard of bitter almond-water having been used in compounding medicine. On the contrary, Mr J. E. Spratt, chemist, deposed that he kept five descriptions of bitter almond-water, two English and three foreign; that he was in the habit of making up physicians prescriptions, and constantly used bitter almond-water; that if the word "concentrated" was not mentioned in the prescription, he should use the strength stated in Gray's Pharmacopœia, which would be quite harmless. Mr Jacob Bell deposed that there were twenty-two different descriptions of bitter almond-water, and, looking at the prescription, he should not know which of these was required (!) and, if such a prescription had been sent to him, he should not have made it up without communicating with the physician. In his cross-examination, however, he admitted that had he seen the prescription, he should have known that the bitter almond-water was merely intended as a vehicle for the administration of the medicine, and he would have made use of a harmless description of bitter almond-water—but that he had no means of knowing whether it was to be used internally or externally; that which he sent was a concentrated bitter almond-water, but there were some of a more powerful description; that in his opinion the prescription should have defined the strength of the bitter almond-water that was to be made use of. Mr Bell also stated that the strychnine powder was a preparation from *nux vomica*, which, in the quantity mentioned in the prescription, would have in itself proved harmless.

What we have given above, our readers will observe, are mere extracts from the report of the trial, and not a full report of the whole evidence.

After Mr Spratt's evidence, who was examined subsequently to Mr Bell, though for convenience we have changed the order, Mr Justice Colridge inquired of Mr Payne, who conducted the prosecution, whether he thought the prosecution should be carried any further, to which Mr Payne replied that he certainly thought after the evidence that had just been given, that the matter was too doubtful to justify a conviction. His lordship then observed that it appeared perfectly clear that a chemist possessing the ordinary knowledge of his profession, must have known that a weak description of bitter almond-water was intended to be used for the prescription. Mr Corfield did not appear to have known anything upon the subject, and he did not give the prescription a fair chance. Mr Clarkson, however, for the defence, wished to call another witness, Mr Venables, lecturer on medical jurisprudence, during whose evidence the jury interposed, stating that they were quite satisfied, and at once returned a verdict of not guilty. Mr Clarkson then observed that if the case had gone further, he had twenty chemists present to prove that bitter almond-water was constantly an ingredient in the prescriptions they made up for physicians.—*Central Criminal Court, April 7th, in Times newspaper, April 8th, 1847.*

The verdict of the jury was here unquestionably correct. If on the one hand there appears to have been some want of caution on Dr Cronin's part in not defining the strength of the bitter almond-water prescribed, it is on the other hand to be remembered that he was thrown off his guard by having found the prescription frequently made up by dispensing chemists without danger. We are far, however, from counselling any medical man to follow his example in not defining the strength of such a medicine, persuaded as we are of the urgent necessity for constant watchfulness against the possible ignorance, carelessness, or momentary inadvertence of dispensers. It was indeed impossible to look at the prescription without seeing that the bitter almond-water was designed merely as a vehicle, and therefore that it should not be of any considerable strength. Yet the addition of some qualifying word to the bitter almond-water could not but have roused Mr Corfield's dormant attention to what he was about. As it was, it was Mr Corfield's duty, particularly in the state of ignorance in which he confesses himself to have been as to the bitter almond-water, to ascertain the strength of the vehicle which he used. We cannot imagine that he, a dispensing chemist, was ignorant of the existence of prussic acid in the essential oil of bitter almonds, and that bitter almond-water owes its properties to the presence of this oil; or, at least that he had not read or heard that bitter almonds are capable of affording a powerful poison. If this were possible, after all that has been of late years written on this subject in common books, it shows the necessity of enforcing something more than an apprenticeship on the dispensing chemist, namely, a course of study, which should impress upon his mind something beyond what the mere exercise of his senses on the drugs and manipulations around him can afford. Of Mr Bell's knowledge there can be no question, but he imparted it in a very niggardly way to his brother chemist. It may be the practice, as Mr Bell says, not to mark the strength of a drug when sent by one chemist to another, but the practice is most dangerous, and cannot be too soon abolished. We wonder that a man of Mr Bell's intelligence could retain the usage for a single day. Mr Corfield sent for "*aqua amygdalæ amaræ*," a fluid which has no authorised strength in this country; and though Mr B. knew twenty-two kinds of fluid to which that one name was applicable, some of them innocuous, he sent Mr C. a deadly poison, without any intimation of its strength! It is impossible not to perceive that the death of this young woman in the prime of health, was the direct consequence of Mr Bell's having acted on an absurd rule or silly form of etiquette among dispensing chemists in their dealings with each other. Something was said by the coroner on the first investigation of this case as to the penalties to which a dispenser subjected himself by refusing to make up a prescription authenticated by the initials of a physician. We believe the acts on this subject to be very perplexed, and incapable of being enforced. At all events, no penalty could be exacted for refusing to make up a prescription containing ingredients not authorised in the Pharmacopœia. A dispenser cannot be bound in law to keep anything in his shop beyond what the Pharmacopœia contains. If he make up a prescription containing unauthorised ingredients, he plainly incurs a personal responsibility, and on this account he is bound for his own sake to make sure that what he sends out, is what the physician intends he should use. This is a responsibility which every dispensing chemist who keeps an open shop must often incur, since it is neither possible nor desirable that the Pharmacopœia should keep pace closely with the ever-varying fashion of medical prescription.

Part Fourth.

MEDICAL NEWS.

OBSTETRIC SOCIETY OF EDINBURGH.

SESSION VI.

THIRD MEETING.—*March 10th, 1847.* DR SIMPSON in the Chair.

Dr Keiller, Dr Finlay, Newhaven ; Dr Cunningham, Cramond ; Dr M'Cowan, and Dr Mackenzie, were admitted ordinary members.

CASE OF PREMATURE LABOUR, COMPLICATED WITH A FIBROUS TUMOUR OF THE UTERUS. COMMUNICATED BY DR TOOGOOD, OF TORQUAY.—A lady aged thirty, who had always enjoyed good health, was married in April 1846, and became pregnant in June. She was quite well until the 24th of December, when symptoms of premature labour commenced, which terminated on the 28th, in the delivery of a foetus in a high state of decomposition. Her medical attendant remarked at the time, that the discharge was of a peculiarly offensive odour, and observed on laying his hand on the abdomen, that the uterus was considerably larger than usual, insomuch, that he suspected there might be another foetus. With the expectation of the discharge which continued, and was of the same character, nothing particular occurred ; and at the expiration of a month, she came to this place. She consulted a surgeon, who, finding the uterus very tender to the touch, directed the application of leeches and the usual treatment, but as no benefit resulted, and as symptoms of great constitutional disturbance began to show themselves, I was requested to meet him on the third of February, 1847. On examining the uterus externally, it was large, and slender to the touch. Internally the vagina was very sore ; the os uteri dilated to the size of a sixpence, and on pressing my finger into it, a solid body was felt. My examination corresponded in every respect with that which the surgeon had previously made. It was proposed to open the os uteri with a sponge tent in order to ascertain the nature of the mass, and, if practicable, to remove it, as the discharge continued very copious and as offensive as ever, with daily increase of the fever and constitutional symptoms. When the os uteri was fully dilated, a large mass could be felt occupying the uterus. Every prudent and cautious attempt to remove it failed, and although the tumour could be drawn down, so as to enable me to pass my two fingers behind it, it was found to adhere so strongly to the side of the uterus, that it was impossible to dislodge it. On the seventh she became much exhausted, and early on the morning of the ninth she died.

On laying open the abdomen nine hours after death, the omentum was found adherent to the uterus, the intestines lying over it, inflamed on their posterior surface. There was considerable effusion of lymph and pus in the cavities of the pelvis and abdomen. The uterus was large and much inflamed. On dividing it, a tumour was exposed, measuring five inches by four, occupying the left side of the uterus, and closely adhering to it. The internal surface of the uterus in a state of sphacelus. The uterus, including the tumour, weighed two pounds ten ounces.

The tumour (which was shown to the society) was a large fibrous mass of the usual structure and appearance : it was mostly imbedded in the wall of the uterus, but a portion of it protruded into the uterine cavity. Around the base of this portion was a marked rim or ridge, as if a layer of the uterine structure

which had at one time covered it in its whole extent had been removed by ulceration. The upper part of the tumour was tolerably firm, but towards the lower part where it lay near, and, indeed, almost protruded through the os uteri, it became gradually softer, and at the very lowest part it appeared to be in a state of complete sphacelus. Its attachments to the parts in which it was imbedded were very loose, and it was enucleated with the greatest ease.

HYDATIGINOUS OVUM OR HYDATID PLACENTAE.—*Dr Malcolm* showed a beautiful specimen of uterine hydatids. The quantity of hydatids, expelled from the uterus in this case, was very great. Their expulsion was preceded for some days by watery and coloured discharges. The mother had several children previously.

Dr Moir and *Mr Woodhead* mentioned cases of hydatiginous ovum, which they had met with. In *Mr Woodhead's* case, there had been more or less hemorrhage observed for four months preceding the evacuation of the hydatiginous mass.

Dr Simpson showed an old specimen of hydatid ovum, where the embryo was extremely small; not larger than a pea; and the placenta enlarged into a mass of hydatids and fibrine (decolorized blood) weighing thirteen ounces at the time of its expulsion. The patient reckoned herself gone beyond the full time of utero-gestation.

NATURE OF HYDATIGINOUS DEGENERATION OF THE OVUM.—*Dr Simpson* stated it as his opinion that the hydatiginous ovum or hydatid placenta was a morbid state of a compound character. 1. The alleged hydatids were, no doubt, merely the enlarged villi of the chorion. So far the affection was a kind of *malformation* from arrest of development, the villi of the chorion remaining of their early embryonic type, and continuing to increase, and grow under this retained type of structure. But 2. the cells of the villi, constituting the hydatid placenta, appeared at the same time to be generally broken up in their internal tissues, and distended by a morbid accumulation of fluid. So far we have *disease* added to malformation; and dropsy co-existing with the hypertrophied state of these structures. It would be difficult to decide whether the dropsy stood in the relation of cause or effect to the malformation; or whether both were not the effects of some common cause.

CASES OF SPONTANEOUS PELVIC AND CEPHALIC EVOLUTION.—*Mr Woodhead* was called to a woman in labour at 2 a.m, but did not see her till 9. On examining he found an arm and part of the chest presenting, and already well down into the pelvis. The membranes had ruptured about twenty hours before he saw her; the pains were strong and regular. At a quarter to 11 *Dr Weir* saw her. The parts were then still lower down, and the chest pressing upon the perineum. A large dose of morphia was now given, and as soon as it had the effect of arresting the pains, *Dr Weir* introduced his hand, pulled down one foot, and thus assisted the mechanism of spontaneous expulsion, without actually turning the child, as the breech first passed the perineum, and the arm was never in the slightest degree retracted. The child was dead; the mother made a good recovery.

Dr Martin Barry read the following notes of a case of cephalic evolution :—“Mrs S., at 39, delivered in the eighth month of gestation of her eighth child, states that about a fortnight before her delivery, she received a blow on the abdomen from the foot of a child as the latter lay asleep in the same bed. This seems to have ruptured the membranes, as the liquor amnii began to escape shortly afterwards.

“*Dr Barry* was called when labour pains came on, and found several loops of a vigorously pulsating cord protruding through the os uteri; immediately internal to which was a part afterwards proving to have been the left shoulder. At this time the os was not sufficiently dilated to admit of further examination, which was also rendered the more difficult by considerable

rigidity of the cervix. Attempts were forthwith made to reduce the cord, and these seemed to have been in some degree successful, when, after the patient had arisen to obey a call of nature, several inches of the cord were found protruding, not from the os uteri, but from the os externum *vaginæ*, with no perceptible pulsation. The cord, however, was again reduced; and the rigidity of the cervix having been removed by tartarized antimony in quarter-grain doses, the nature of the presenting part was soon revealed.

"The contractions of the uterus now became extremely powerful, and the intervals very short. There was no time for turning, or even for procuring, an opiate preparatory thereto. And the left arm having been brought down, a dead child was speedily expelled by cephalic evolution.

"The order in which the parts came into the world was the following—first, the left arm; second, the left shoulder; third, the thorax, with the head doubled back upon it; fourth, the abdomen and right arm; the lower extremities coming last."

Dr Malcolm referred to a case of spontaneous evolution he had published in the 41st volume of the *Edinburgh Medical Journal*, p. 336. The woman had been ill for about twenty hours, and was attended by an ignorant midwife, who had attempted to deliver by pulling at the presenting part. *Dr M.* found the left arm and shoulder, and a portion of the thorax, already expelled through the external parts; the shoulder pressed forward under the pubis. A large dose of laudanum was immediately given, but it only aggravated the pains, which were already powerful and frequent. Fearing rupture of the uterus, *Dr M.* passed up two fingers into the vagina, and found both feet jammed against the sacrum. He brought them forwards, and effected the delivery; the feet, breech, body, remaining arm and head passing over the perineum in succession. The presenting arm was never withdrawn. The infant appeared to have been dead for some time; it weighed rather more than 5 lbs. The woman made a very good recovery.

Dr Thomson had seen a similar case lately in the *Edinburgh Maternity Hospital*. He was sent for at four p.m. The woman had been in labour all the forenoon, but the presentation could not be felt till just before he was called. He found the left arm and shoulder very low down, and the breech at the brim of the pelvis. The child was expelled after two or three pains, the breech being pushed down first. The presenting arm and shoulder did not recede in the slightest degree—they were simply pushed forward under the symphysis while the breech was passing. The child was still-born, and scarcely five pounds in weight. Shortly after the occurrence of the above case, he was called to see an out-patient of the same hospital at seven o'clock p.m. She had been in labour for a considerable time, and the waters were off. The left arm was found protruding through the os uteri, which was only open to the size of a shilling. He left her under charge of a pupil, and on returning at a quarter to nine he found the child already born. The pupil had examined at a quarter past eight, and found the part much as when *Dr Thomson* left. The pains were now strong; and on going to examine again in about half an hour, after a very strong pain, he found the child born. It was alive, but died soon after. It weighed about five pounds. The last stages of the labour must have been very rapid. The residual dilatation of the os, and the evolution of the child, could scarcely have occupied half an hour—there were very few strong pains.

Dr Simpson described a case of spontaneous pelvic evolution which he had seen in the second child of a twin case. He was called in about an hour after the first child was born, when the arm and chest of the second child were already protruding through the vagina, and the process of its spontaneous expulsion going rapidly forwards. It was born dead by the unassisted efforts of the uterus, in the course of a few pains, and by the usual mechanism. He further alluded to a case some years ago, attended here by *Dr Cowan*, the arm presenting, and the breech at last passing first.

GENERAL DEDUCTIONS REGARDING SPONTANEOUS EVOLUTION.—*Dr Simpson* observed that the preceding and other cases showed, 1st, that spontaneous evolution in transverse presentations was not so rare as some authors averred, and that it would probably occur oftener if proper and timely assistance were not rendered. 2d, That, under some circumstances, arm and shoulder cases should probably be left to be expelled by the mechanism of spontaneous evolution, assisting, if necessary, this mechanism by art. 3d, That this ought to be our practice, if, in an arm or shoulder case, the chest and trunk of the child be *already* thrust down into the cavity of the pelvis; for to turn under such a complication, and, with that object, attempt to push back the body of the child from the cavity of the pelvis into the cavity of the contracted uterus, would necessitate the redilatation of the uterus, and hence, in all probability, produce a rupture of its coats. 4th, That if the process of spontaneous evolution failed, two operations had been recommended to effect delivery, viz., evisceration and decapitation; and they had always been described as applicable to the same set of cases; but they were, in reality, individually applicable in two different sets. 5th, That evisceration was only applicable to cases of *pelvic* spontaneous evolution, demanding operative interference; and decapitation only applicable to cases of *cephalic* spontaneous evolution. 6th, Of course in all common transverse presentations seen before the body and bulk of the infant was doubled and thrust down into the cavity of the pelvis, and was still, in fact, in the cavity of the uterus, *turning* was the proper practice, and to wait for the prospect of spontaneous evolution would be utterly wrong. And 7th, a child of the common size could never, in a transverse presentation, be forced and doubled down into the cavity of the pelvis, unless the pelvis were large in its dimensions, and hence when the process of spontaneous evolution is found in an *advanced* stage, it is almost a certain sign that the pelvis is of such measurements as to give a chance of its completion.

INCISION OF THE OS UTERI AS A MEANS OF DILATING IT IN OBSTRUCTIVE DYSMENORRHEA.—*Dr Simpson* stated that he had now been in the habit for three or four years past of performing the operation of incision of the cervix uteri for obstructive dysmenorrhea. He first described the operation to the Medico-Chirurgical Society in 1844, and it had latterly been adopted by Dr Rigby, Dr Protheroe Smith, Dr Oldham, and other accoucheurs in London and elsewhere. Dr S. had often been asked if he had occasion to perform the operation often. Certainly he had. In the last week he had operated in seven cases. He was in the first instance led to incise, instead of dilating the os uteri by bougies, by meeting several years ago with a patient suffering under dysmenorrhea, and who could only remain a few days under his charge. The incisions had in this instance the desired effect; and the lady was delivered of a son within a twelve-month. She had been previously six or seven years married, but had never been pregnant.

Dr Simpson further explained that he believed the sufferings in obstructive dysmenorrhea to arise from the uterus being driven into contractions (like those of abortion) to expel its own *retained* menstrual secretions. Now, the menstrual secretion need not *necessarily* be retained when the os uteri is small; for the secretion might form very slowly, and so escape without accumulation and distension. On the other hand, it might be secreted so abundantly by the lining membrane of the uterus, as not to escape sufficiently freely even when the os was of the natural size, and thus, under that condition, lead to retention, accumulation, and expulsive pains. In fact, in order to produce obstructive dysmenorrhea, there must be a want of relation between the quantity of fluid secreted, and the quantity allowed to escape, so that a greater or less degree of retention was the result. It was of course most apt to occur with a small and contracted os uteri, and these were the cases most frequently requiring the operation.

The instrument which *Dr Simpson* makes use of is a kind of lithotome caché, manufactured by Mr Young, cutler. The end of the instrument is passed up

through the cavity of the cervix, and within the os internum. It is then slightly opened laterally, first on one side and then on the other, so as to divide any fibres that may be causing constriction of the internal orifice. The principal incision is then made in withdrawing the instrument. This incision commences at the union of the cervix with the body of the uterus, and passing gradually more and more into the substance of the cervix as it descends, the blade is brought out at the outer and lower edge of the cervix, at the point of reflexion of the mucous membrane upon the wall of the vagina. The instrument is then turned, and a similar cut made on the other side; or the incisions may be made antero-posteriorly instead of laterally. The incision is thus of a conical form, and at its lower part includes the whole thickness of the cervix. Care must be taken that it does not pass beyond the substance of the cervix, as it is closely surrounded by a plexus of veins, which, if cut, would certainly cause severe hemorrhage. If care be taken to regulate the incision in this way, the hemorrhage is usually very trifling. The operation causes little or no pain. The lips of the wound generally get everted, and have very little tendency to cohere. If they offer to do so, it is necessary to touch the raw surface two or three times with nitrate of silver.

Dr S. showed the operation to the Society upon a uterus taken from a dead subject.

ON ETHERIZATION.

In our historical notices of the effects resulting from the use of ether, we have endeavoured merely to record the facts as they arise. It would seem, however, that the article in our last number has led to some misapprehension. In alluding to the alleged fatal effects of this substance, we thought we had been sufficiently cautious. It was asked, "is this result the effect of ether? an answer in the affirmative cannot be decidedly given, but all such cases require to be put on record." We continue to be of the same opinion, and shall put on record all the fatal cases that occur *after* the employment of ether, being satisfied that it is of the utmost consequence to ascertain whether it be innocuous or occasionally dangerous, and in the latter case, what are the contraindications to its employment. A correct judgment can only be formed by further experience and multiplied observations. We deprecate alike the excessive enthusiasm which insists that under no possible circumstances, ether can be, or ever has been prejudicial, and the unreasonable timidity which prevents the employment of a useful agent, because, in a few cases, injurious effects have been apparently occasioned by it.

During the past month Etherization has been extensively practised, but few novelties have been published with respect to it. Its advantages and applications are still debated at the meetings of the Academy of Sciences and the Academy of Medicine in Paris. We observe, however, that the cases noticed in our last number have produced an effect on the warmest advocates of inhalation. Even M. M. Velpeau and Roux, though still maintaining its great advantages, now speak of the necessity of caution in its use. This is as it should be.

The third case to which we alluded, as likely to be fatal *after* the use of ether, in the Royal Infirmary, has since expired. It was a case of tibio-tarsal amputation, under the care of Mr Syme. A girl, aged 14, of good general health, was affected with caries of the tarsal bones, and fistulous openings leading from them. The amputation was performed in the usual manner on the 24th of February, without the slightest pain, the ether having produced its full effect. She died April 5. On dissection the blood was found unusually fluid, and secondary purulent deposits existed in the lungs, left kidney, right knee, and left hip joint. Such are the *facts*. As to whether death in this, or the other two Infirmary cases, resulted from the etherization, that is a matter of *opinion*. Some say no, others yes. It is the first fatal case of tarsal amputation which has occurred in Mr Syme's practice, and it is only right to state that in

his opinion it is attributable to the ether. The observation of other cases will sooner or later decide the point.

Applications.—In the case of a young man, aged 23 years, subject for some years to epileptic attacks, which returned every 15 days, M. de Rabodanges caused ether to be inhaled, the evening before the day on which the attack was expected, with the result of preventing it. (*L' Union Médicale*, No. 42.) M. Marc Dupuy has injected large doses of ether into the rectum of two dogs, and found that in this way it will cause perfect loss of sensation. Slight inflammation of the mucous membrane was produced in one case. (*Ibid*, No. 24.) M. Stolz, of Strasburgh, has published a case of turning, in which he met with considerable resistance, in endeavouring to pass his hand into the uterus, notwithstanding the complete insensibility of the patient, by means of ether. He concludes from it that ether in no way facilitates the turning or extraction of the fœtus. (*Gazette Méd. de Strasbourg*, Mars 1847.)

EPIDEMIC OF SCURVY IN EDINBURGH.

A VERY singular epidemic of scurvy has broken out among the railway labourers in the neighbourhood of Edinburgh. On the day we write this, no less than 92 cases of the disease, in all its different stages, may be seen in the Royal Infirmary, special wards having been opened for their reception. In the autumn of last year a similar epidemic occurred among the prisoners of the general Penitentiary at Perth. Both these epidemics have fortunately found an able historian in Professor Christison, who at the last meeting of the Medico Chirurgical Society, read an elaborate memoir, abounding in novel views of the etiology and mode of treatment of the disease. We shall have the pleasure of presenting our readers with this valuable contribution to medical science in our next number.

BOOKS RECEIVED.

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| <p>1. Zusätze zur lehre vom baue und den verrichtungen der Geschlechts-organe. Von Dr Ernst Heinrich Weber, Professor der Anatomie und Physiologie zu Leipzig, Mit Neun Tafeln Abbildungen. 8vo. Leipzig. 1846.</p> <p>2. Physiologisch-pathologische Untersuchungen über die erscheinungen an den Artevien und Venen, und die quantitativen Verhältnisse des Blutes im Verlaufe verschiedener Krankheiten. Von Dr Joseph Hamernjk, &c. 8vo. Prag. 1847.</p> <p>3. Mikrophographie oder Anleitung zur Kenntniss und zum Gebrauche des Mikroskops. Von Hugo von Mohl, M.D., &c. 8vo. Tubingen. 1846.</p> <p>4. Leçons sur les Phénomènes Physiques des corps vivants par C. Matteucci. 12mo. Paris, 1847.</p> | <p>5. Notes of a Case of painless Surgical Operation, performed while the patient was under the influence of Mesmeric Agency. By J. W. T. Johnstone, M.D. Edinburgh. 8vo. Madras, 1847.</p> <p>6. Address Delivered at the Opening of the New Hall of the Royal College of Physicians, November 1846. By William Beilby, M.D., President. Edinburgh 1847.</p> <p>7. Address to the Medico-Chirurgical Society, on occasion of being elected President, including some remarks on Homœopathy. By Robert Hamilton, M.D. F.R.S.E., &c.</p> <p>8. Annual Report of the Managers of the Royal Public Dispensary, Edinburgh, For the year 1846.</p> |
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TO CORRESPONDENTS.

Communications have been received from Drs Christison, and R. Hamilton, and Mr Hallet.

Dr Alexander Tyler's communication, although in type, is unavoidably postponed until the next number.

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No. 12. NEW SERIES.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Scurvy.* By ROBERT CHRISTISON, M.D., V.P. R.S.E., President of the Royal College of Physicians of Edinburgh, Professor of Materia Medica in the University of Edinburgh, Physician to the Queen in Scotland.

PART I.—*Account of an Epidemic Scurvy which prevailed in the General Prison at Perth in 1846.*

(Read to the Medico-Chirurgical Society of Edinburgh, April 21, 1847.)

ALTHOUGH Scurvy has at all times attracted attention in Britain, chiefly as an epidemic on board ships and fleets at sea, it was also at one time not uncommon upon land. But when an improved agriculture supplied fresh vegetables during the winter, to serve throughout that season for the food of man, both directly, and indirectly by maintaining fat cattle in condition, scurvy, as a land disease, was soon in a great measure extirpated from the country. And now there are probably few practitioners, who have had an opportunity, until the present year, of seeing a single case of it of home growth.

In one locality alone has it still continued to occur from time to time. It is heard of now and then as showing itself in the large prisons of the country. The severe epidemic which broke out in the Milbank Penitentiary at London in 1823, is familiar to every one acquainted with the literature of the subject. Since that time it has also been seen occasionally, to a limited extent, in the English county prisons. And *Dr Baly* has given an account of some cases which appeared among the military prisoners in the Milbank Penitentiary in 1840 and 1841; when nine soldiers in

one year, and ten in another, were attacked with true scurvy. In no instance, however, since 1823, has the disease been anywhere so prevalent as to deserve the name of an epidemic, until the occasion which led to the inquiry about to be described.

This inquiry is chiefly important on general grounds, as tending to fix professional opinion upon some points still disputed, and to correct some doctrines lately promulgated, by approved authors, as to the origin of scurvy. For although scurvy has been made the subject of numerous researches, and in circumstances apparently most favourable for arriving at the truth, a collation of these researches with one another cannot fail to show, that the question as to the cause or causes of the disease still remains open for discussion on some material particulars.

The General Prison at Perth was erected for the reception of criminals in Scotland sentenced to long terms of imprisonment; and was first occupied in March 1842.

It is situated about half a mile south from Perth, on the flat alluvial land forming the right bank of the Tay, and is a conspicuous object to one approaching that city by the great north road from Edinburgh. The prison is about thirty-six yards from the river edge, and about twenty-five feet above high-water mark of ordinary spring-tides. The river here is of considerable breadth, and its stream at low water is powerful, except in seasons of extreme drought. Although the right bank presents an extensive flat, there is no marshy land near the prison; and the space left exposed by the river at low water, owing to the steepness of its immediate bank, is narrow.

The portion of the prison occupied by the prisoners consists of two adjacent buildings radiating from a common centre. In conformity with the modern plan for prisons in this country, each building consists of two lines of cells, with an intervening corridor, fifteen feet wide, which extends from the floor to the roof, and in one of the buildings from one end to the other, unbroken except by a narrow, winding, iron staircase, and light, narrow, iron gangways, running round at each tier of cells, and by a similar gangway for each floor crossing the middle of the corridor. In the other building the construction is precisely the same, except that it is divided across by a wall into two parts, one for males, the other for females. By this construction, the door of every cell is visible from almost any point in the spacious corridors. There are four tiers of cells in each building; and one building contains 179 cells for prisoners; another 101 in one division, and 74 in the other. There is, besides, a detached hospital lately erected for lunatic prisoners, and capable of accommodating 53 individuals. The cells in the main buildings are 13 feet long, from $6\frac{1}{2}$ to $8\frac{1}{2}$ feet wide, and 10 or $10\frac{1}{2}$ feet in height; and they are very well lighted.

The ventilation of the prison depends in part on the cell windows, which admit of being opened, and partly on a thorough draft, established through each by means of a furnace. The means of ventilation appeared perfect last October in the course of the inspection, which will be alluded to presently. But a more careful examination, made subsequently by an architect towards the end of November, detected certain defects, which have since been remedied, or are in the course of being so.

Water is supplied partly from a spring in the adjacent acclivity of Moncrieff Hill, and partly from the river by pumps, which are worked by the prisoners. The quality of the water from both sources is good, and the supply amounts to twelve gallons a day for each prisoner.

The exercises of the prisoners consist of walking in airing yards, running in covered galleries, gymnastic exercises for the young, working the pumps, wheeling barrows, and other occasional services requiring muscular exertion. The duration of exercise during last summer and autumn was, on an average, an hour and a quarter for those above twenty-one years of age, and for those under twenty-one between an hour and three quarters and two hours during the months of July, August, and September.

The prisoners must all work, and for that end are taught some trade available in confinement, if not previously trained to one of the kind. A very few, who are too low in intellect to acquire a trade, are set to tease oakum, wool, or cotton. The prevailing trades among the men are those of weaver, matmaker, tailor, and shoemaker; and the females are all employed in knitting or needle-work, or in assisting the servants of the establishment in any work at which separation from one another is practicable. All the prisoners likewise receive instructions in reading, writing, and arithmetic, and attend divine service in a chapel peculiarly constructed for the purpose.

It must further be understood that the great principle of prison discipline, complete separation of the prisoners from each other, is rigorously enforced in all their occupations. Whether working, or at exercise, or in chapel, no one prisoner sees another from the time he enters the prison until he leaves it, except in a very few instances, by order of the physician of the prison, when the mind threatens to break down under strict observance of the prison rule. The confinement, however, though separate, is by no means solitary. For, taking into account the visits paid by the governor, wardens, schoolmasters, chaplain, and physician, each prisoner is seen and conversed with on an average ten times daily. And in addition, they are all visited once a month by a committee of the General Board of Directors of Prisons in Scotland, who spend two, and sometimes three days, in a minute and faithful inspection of every department of the prison.

The diet of the prison, an important object of attention, in re-

ference to the particular subject of this paper, is founded on printed regulations, issued by the General Board of Directors. Each prisoner is put at first upon the lowest rate, which is soon exchanged for a middle one, and soon afterwards for the third, the highest of all, if this should prove necessary, as is generally the case with the male prisoners. The result is, that, not many weeks after admission, all the men who are not infirm, are put upon the third rate, and all the women and boys upon the middle rate at least. As for the infirm, their diet is extra, and regulated for each case by the physician.

In the Standard rates, breakfast and supper consist of porridge and skimmed milk, and dinner of bread and broth, made of meat, barley, potherbs, roots, and salt. And the only difference between the middle and third rates is, that in the former there is a quarter of a pound less of bread allowed at dinner, and two ounces less of oatmeal at supper.

But the regulations of the board, likewise allow of a variety of substitutes for the standard articles, viz. potatoes for oatmeal porridge, potatoes and milk for broth and bread, butter-milk or treacle-water for skimmed-milk, and for the broth potato-soup, pea-soup, sago-soup, barley-milk, or white fish. In this way a considerable variety may be introduced into the prisoners' dietary. These substitutes have been resorted to in the General Prison to the following extent. Broth was served for dinner on four days of the week, pea-soup on one day, barley-milk on another, and fish on the seventh day. In ordinary years potatoes were occasionally substituted for oatmeal-porridge at supper; but in 1846 they were necessarily given up, as they were scarce and dear. The only other important substitution was that in March 1845, treacle-water was served to all the prisoners, except the infirm, instead of milk at supper; and in May of the same year, the same exchange was made at breakfast also.

The particulars of the General Prison diet will be stated more fully afterwards. For the present, it is sufficient to observe, that the third rate of the standard diet of the regulations comprises $25\frac{1}{4}$ ounces of nutritive proximate principles in the anhydrous state, of which six ounces are nitrogenous constituents, and of these almost two ounces nitrogenous principles from the animal world; that the change from milk to treacle night and morning involves a reduction of the total nutriment to $24\frac{1}{4}$ ounces, of which $4\frac{3}{4}$ ounces are nitrogenous, and half an ounce of this portion is animal in its nature; and that both the Standard middle rate, and the variation of it in the General Prison contain about four ounces less of nutritive principles, of which two-thirds of an ounce are nitrogenous vegetable matter.

Under this state of things the health of the prisoners continued in a satisfactory condition for upwards of four years. The deaths,

in a population averaging about 330, amounted to about four annually; * the number on the sick list was at all times very small; and the prison escaped several epidemics which occurred in Perth and the neighbourhood. In March 1844, I had occasion to examine a great number of the prisoners, and was much struck with their general healthy appearance, and the small proportion of sick among them.

Such was also the state of matters in the beginning of 1846. But in the summer of that year the health of the prisoners was scarcely so good. And towards the end of June, scurvy for the first time began to make its appearance. For a month or two its progress was slow. But gradually it spread more and more extensively; and in the course of October so many were affected, that the Board of Directors judged it expedient to order an express medical inspection, with a view to ascertain its extent, its causes, and the mode of arresting it. This duty having been entrusted to Dr Maclagan and myself, we first visited the prisons of Edinburgh and Glasgow, and the County Prison of Perth; and ascertained that all these prisons were in a satisfactory state, and without a single case of scurvy in a conjunct population of 1016 persons. With this information we proceeded to examine minutely the General Prison on the 30th and 31st October. Our enquiries were directed to various points connected with the health and prevailing diseases in the prison. But in the following remarks scurvy is the only disease which will be referred to, as indeed it was the only one which could be said to be prevalent.

At the time of our visit we found 39 cases of decided scurvy, or of convalescence from scurvy, 37 of them males and only 2 of them females. There were also 11 others, 8 of them males and 3 females, whose cases were considered at the time to be suspicious, and who in all probability were affected with the disease in its incipient stage. And in addition, a few others presented obscure symptoms resembling scurvy, but which we were inclined to refer rather to dyspepsia and the irritation arising from decayed teeth.

Scurvy, it is well known, approaches in general so gradually, that it is seldom easy to fix on the precise date of its commencement. The first cases observed in the General Prison attracted the notice of the prison officers towards the end of June, or very beginning of July; and this date corresponds with what was stated to Dr Maclagan and myself by several of the prisoners themselves. In

1 In 1842 the deaths were 5, and the prisoners about 349
1843 " 6, " 346
1844 " 3, " 308
1845 " 3, " 324

It must be observed, however, that these numbers do not represent the mortality quite accurately, because it is the practice to liberate for a time any prisoners labouring under diseases, in consequence of which their lives would be endangered by continuance in confinement. No such case occurred in 1845.

July and August the number of new cases was inconsiderable ; but they increased in September, and still more in October ; and 23 prisoners seemed to have been seized during the five weeks immediately preceding our visit. At that time indeed the disease threatened to spread even more widely ; for seven decided and three suspicious cases had commenced within ten days before. The physician of the prison, however, Dr Malcom, had already resorted to judicious measures for arresting its farther progress. These had already begun to produce their effect ; so that, being applied more extensively in consequence of our opinion and advice concurring with Dr Malcom's views, the epidemic ceased to extend, and not a single new case occurred after the 31st of October.

In describing the cases which came under notice on this occasion, it is quite unnecessary to detail with minuteness the phenomena of a disease which has been so often graphically described before. It will be sufficient to present such a sketch as will identify the epidemic with the true *Scorbutus* of nosographers, or Seascurvy.

In so great a number of cases the disease was to be seen in all stages except that which precedes its fatal termination. In the outset there was the scurfy appearance of the integuments of the limbs, which has been insisted on by authors as an incipient or precursory symptom ; together with pain, tenderness, and stiffness of the legs, some degree of tension also here and there, especially below the ham or round the ankle ; and likewise some fulness, redness, and even lividity of the gums, great tenderness there, causing difficulty in chewing ordinary articles of food, and a tendency to bleeding ; but no loss of appetite or any material disorder of any of the digestive functions. In more advanced cases the skin of the legs was mottled with lenticular spots of a brown or livid colour, surrounding the roots of the hairs, and by that circumstance easily distinguished from the petechiæ of purpura, which generally show themselves rather on the free surface of the integuments, where the hairs are fewest. When the disease was fully formed, the legs were more or less swollen and œdematous, very tender, extremely stiff, painful on the slightest attempt at motion, hard and resisting on irregular spots of no great extent, or more uniformly over most of the leg, but especially in the upper part of the ham, and downwards to the termination of the gastrocnemius muscle in its tendon. The parts thus affected presented also diffuse ecchymosed patches of various sizes, or a widespread yellowish brownness, like what occurs during the absorption of ecchymosis from a common contusion ; and both of these appearances, but especially the latter, were attended with a peculiar solidity of the limb and a fixedness of the integuments, so that the skin could not be pinched up, as if the integuments had become firmly bound to the subjacent fasciæ and tendons by the effusion into the subcutaneous cellular tissue. In some cases of the

kind there were also scattered purple petechiæ as big as a pea, or larger; but this was not a common appearance. In all cases so far advanced as these the gums were much swollen, very livid, and hanging more or less over the teeth in fleshy excrescences, which were made to bleed by the slightest rudeness of touch. There was also a liability to epistaxis in several, to hæmorrhoids in a few, and to menorrhagia in one or two women. The pulse was rather frequent; the skin often rather warm; the tongue clean, though not invariably so; the breath fetid, and sometimes exactly as if mercury had been taken; the appetite tolerable or even strong; the bowels constipated; the countenance sallow and bloodless; the mind sluggish, and inclined to gloom and despondency. We saw no cases in a more advanced stage than this. In those which had begun to yield to treatment, the most important symptom was the formation of various chronic eruptions on the previously ecchymosed limbs, resembling diffuse psoriasis, or in a few instances ichthyosis. Diarrhœa was a rare accompaniment, and an incidental affection only. It is indeed particularly worthy of remark, that, notwithstanding the universal prevalence of diarrhœa, cholera, and dysentery throughout the country at large during last summer and autumn, these affections were comparatively uncommon in the General Prison, whether among the scorbutics or among the prisoners generally. No case proved fatal.

In some instances the affection of the gums was the primary one in point of time; in others the affection of the limbs. In a few incipient cases we had an opportunity of observing either the one or the other singly; but no case lasted a few weeks without both affections concurring. In the generality of cases, the earliest symptom seemed to have been stiffness of the limbs, especially of the knee joints. But it may be observed that this is an ailment which, as a separate or idiopathic affection, is apt to attack prisoners confined for long terms, and particularly the younger males.

The preceding summary can leave no doubt on the mind of any one, that the epidemic was true Scorbutus, or Sea-scurvy. Having settled this fact, it is time to consider the circumstances which seem to have regulated its dissemination.

In the first place, the disease prevailed to a much greater extent among the male prisoners than among the females. Of ninety-nine females in the prison, on the 31st October, only two had been attacked with decided scurvy; and three others had presented symptoms justifying suspicion. But among 223 males there had been thirty-seven cases of decided scurvy, and eight cases of suspicion. Hence, including the whole of the suspicious cases, a twentieth of the females suffered, and a fifth of the males, or four times the proportion. And confining the view to decided cases, the relative proportions are a fiftieth and a sixth. This result is different from what was observed in the epidemic of scurvy in the

Milbank Penitentiary in 1823. For there two-thirds of the women were attacked, and not quite one-half of the men.

In the second place, the disease prevailed more among adults than among the young prisoners. Here the female prisoners must be excluded; since the number of scorbutics among them was too limited to allow of a sound induction; and besides, few of the females were much under adult age. Of the male prisoners fifty-two were under sixteen, sixty-nine between sixteen and twenty-one, and 101 above twenty-one. Of thirty-seven decided cases of scurvy among the males six occurred in the youngest class, twelve in the next, and nineteen among the adults. The respective proportions in the three classes were therefore 11·5, 17·4, and 18·8 per cent. If the suspicious cases be included, namely, eight in number, of which five occurred in the middle, and three in the oldest class, the proportion of seizures was 11·5, 21·75, and 23·75. The number of male prisoners above thirty years of age was rather limited to yield trustworthy results as to liability at relative ages above that period of life. But it may be mentioned, that among nineteen prisoners between thirty and forty, two were attacked, two others among twelve between forty and fifty, and three of nine who were older than fifty. The influence of increasing age in favouring the development of scurvy is therefore on the whole substantiated by what has been observed in this epidemic.

Thirdly, the influence of previous confinement has proved an important co-operating circumstance. Of 221 prisoners 58 had been in confinement, continuously or nearly so, for less than six months, either in the General Prison, or partly in this and partly in a different prison; 97 had been confined above ten months, but not twelve months; 45 for twelve months, but not eighteen months; and 21 above eighteen months. No prisoner is confined in the General Prison above two years. The number of scorbutics in these four denominations was 3, 12, 16, and 6. Hence the respective proportions were 5·2 per cent. among those not six months confined; 12·4 in those between six and twelve months; 35·5 in those between twelve and eighteen months; and 28·6 in those beyond eighteen months. The series therefore shows a rapid increase of liability with the prolongation of confinement until the last or longest term. The exception is probably more apparent than real. For the number of prisoners more than eighteen months in prison was so small as to bring the proportion of seizures among them too much under the influence of accident. The females have been left out of this enumeration, because the scorbutics among them were too few in number to yield correct proportions. But the general law deducible from observation in the male sex, is confirmed by the only two cases of decided scurvy among the females having occurred after seventeen months of continuous confinement in the one, and after nineteen months in the other.

It may be said that the increase of liability according to the

length of previous confinement depends simply on longer exposure to the direct cause, which will presently be seen to be a dietetic error. But long confinement was a predisposing influence, independent of this obvious mode of action. Even in the General Prison epidemic, its operation extended farther back than the period at which the diet had been changed. But in the Milbank epidemic of 1823, its influence is shown still more unequivocally. On that occasion the change from a sound diet to an unhealthy one was made only about seven months before scurvy became fully established in the prison as an epidemic. Now, while among male prisoners confined less than one year, the cases of disease were 23 per cent; in the class confined between one and two years in confinement, it was 47; between two and three years, 55; between three and four years 68; and above four years no less than 78 per cent. And among the females a similar increase was observed.

The last circumstance which has been proved during the Perth epidemic to favour the development of scurvy, is constitutional infirmity. Extensive facts on this head are not easily obtained. But it deserves mention, that, among thirteen individuals affected on the 31st October with strumous enlargement or suppuration of the glands of the neck, or who had very recently recovered from that disorder, no fewer than six had suffered from scurvy, or about one-half.

Summing up these considerations as to the circumstances which seem to regulate the spread of scurvy, it appears from the experience of the General Prison at Perth, that this scourge is most apt to attack the male sex, those who are beyond adult age, those who have previously been long in confinement, and those whose constitutions are naturally infirm. These are important practical facts, valuable for the management of prisons and other establishments, where bodies of men are lodged, fed, and employed upon a common system. And they are the more important, that it seems impossible to refer the operation of any of the circumstances here indicated merely to their bringing indirectly into play the main cause of scurvy, which it is now necessary to investigate, as affecting the General Prison.

On surveying what has been written as to the causes of scurvy, it will be seen that almost all observers ascribe it to some error in diet. At first it was ascribed solely to salted and ill-preserved provisions. Subsequently it was found that other errors are equally effectual. Great importance has been attached by some to the mere want of sufficient fresh vegetables, whatever else the food may consist of. Others have seen the disease arise seemingly from a deficiency of salt. Others have traced it to mere scantiness of food. A very liquid diet has been thought another source. A diet too purely animal has been known apparently to act with

great intensity. On the contrary, a diet too purely vegetable has been suspected to have had the same tendency. The succeeding observations go far to point out another error still. And thus we arrive at the more general fact: either that various, and very different, errors in diet may all alike occasion scurvy: or that there is some particular cause of the disease, common to all these errors, and which has hitherto eluded observation.

But all observers and authors of credit insist on the necessity of some dietetic error. Confinement, inactivity, damp, foul air, these are all acknowledged to be co-operating agents, which promote the spread of scurvy. But no man ever saw any, or all of these causes together, engender the disease as an epidemic, unaided by some tangible error in diet. They are not even essential for developing the action of faulty diet. They promote it. But certain dietetic errors will occasion scurvy, as will appear from the sequel, although the subjects of it have been living at large, following active employments, breathing the open country air, and not more exposed to damp than most of the working classes of the community.

It is therefore tolerably certain, that, when scurvy breaks out epidemically in a body of men, the fundamental cause is some peculiarity of diet. What then was there peculiar in the diet of the prisoners at Perth?

From the statement formerly given, it appears that the diet was essentially saccharo-farinaceous. The breakfast of the great majority of the male prisoners, who were on the Third or highest rate, consisted of eight ounces of oatmeal made into porridge with salt and water, and fifteen fluid ounces of treacle-water, containing $1\frac{1}{10}$ ounce of treacle. Supper consisted of six ounces of oatmeal made into porridge, and ten ounces of treacle-water containing $\frac{3}{4}$ of an ounce of treacle. Dinner on four days of every week consisted of twelve ounces of wheat bread, and two pints of barley-broth, which contained one ounce of meat, four ounces of (decoricated) barley, about two ounces and a half of turnips, carrots, cabbage, leeks, and onions, together with a due proportion of salt. On one day of every week, each prisoner on the third rate had for dinner, in lieu of barley-broth, two pints of pea-soup, containing four ounces and a half of pease, one ounce of meat, and an ounce and a quarter of succulent fresh vegetables, duly seasoned with salt and pepper. On another day of every week the dinner consisted of twelve ounces of bread, and two pints of barley-milk, made with four ounces of barley, ten fluid ounces of skimmed milk, and a little salt. And on another day it consisted of the same quantity of bread, and twelve ounces of white fish.

Now this dietary,—which, for convenient reference afterwards may be called “Treacle third rate,”—is somewhat peculiar in kind. It differs appreciably from that used in Scotland by the general population of the class to which the majority of prisoners belong.

Like the food in the general prison, that of the Scotch working classes is chiefly farinaceous, or saccharo-farinaceous. But some use a little meat at dinner. And milk is a staple article at breakfast or supper or both, even when meat is used at dinner, but almost always if no meat be taken at that meal. It is unfortunate that a comparison cannot be drawn between the proportion of the several kinds of nutriment thus used by the general labouring population, and the proportion in the food of the General Prison. No one has yet succeeded in obtaining an accurate account of the average food consumed by an individual of the labouring classes in Scotland, living by his own rule, and in ordinary circumstances. But the proportion of animal food must be considerably larger than in the General Prison treacle third rate, by reason of the milk which forms a staple part of their diet.

It is common for practical men, in enumerating the articles in a dietary, or in estimating the nutriment in the food, of the labouring classes, to omit or undervalue the milk consumed by them, and to regard that fluid as little else than mere drink. But this is an error. Milk is really an article of solid food; being coagulated soon after reaching the stomach. As new-milk contains on an average 13 per cent. of digestible solids, and skimmed-milk 10 per cent, the former actually presents fully one-half, and the latter above a third of the nutriment contained in the lean part of beef and mutton; and of the nutritive solids more than a third in new-milk, and above a half in skimmed-milk, consists of nitrogenous aliment. Hence, on scientific principles, milk must be a valuable article of food, especially when the food is composed otherwise of little else than farinaceous substances.

The food, then, of a great majority of the working classes, and especially of the labouring peasantry, in Scotland, as well as Ireland, consists, simply, of such farinaceous substances as oatmeal, barley, potatoes, and occasionally bread, together with a moderate proportion of milk.¹ Now, in these two countries, the human frame is well known to attain a very respectable standard as to physical development, strength, health, and longevity. Hence, the constituents of the diet being so very simple, is it not fair to infer that all these constituents are important?—that they are probably, each of them, essential parts of the particular dietary?—that at any rate, none of them can be safely withdrawn without the substitution of other articles of analogous nature and composition? The late epidemic in the General Prison at Perth, and a similar epidemic, which has since appeared among railway labourers in the country around Edinburgh, will supply a sufficient answer.

In conformity with the habits of the Scotch working-classes, as to food, the General Prisons' Board admitted into the Standard

¹ For some observations on the food of the peasantry in Ireland, the reader is referred to Part II. of this communication.

rates of diet, for the prisons under their care, bread, oatmeal, barley, peas, and milk, for the principal articles. In particular, milk was admitted at breakfast and supper to the extent of twenty-five fluid ounces daily. In the General Prison, the Standard third rate consisted of the same articles as in the Treacle third rate, already described; with the exception, that the prisoners had skimmed-milk morning and evening to their porridge, instead of treacle-water. When this standard rate was altered to the treacle rate, the change involved, as will be shown by and by, an immaterial diminution in the total daily nutriment of the prisoners, but a very considerable reduction in the animal nutriment.

Nevertheless, it must not be supposed that the treacle diet was not a fair and reasonable experiment. Similar dietaries, with treacle instead of milk, which were at that time, and still are, in use in other prisons, have seemed quite consistent with health. And in the General Prison itself, treacle had been substituted for milk on a previous occasion, for two years, at one meal in the day, viz. from March 1842 till April 1844, without any appreciable ill effect.

But what may be fitting in some circumstances, is not necessarily so in all. And the following considerations prove, that in 1846, some circumstance had arisen to render the treacle diet unsuitable; and that the main cause of scurvy in that year was the substitution of treacle for milk.

For in the first instance, no other cause can be assigned for the disease. The prisoners were in constant employment. Their minds were never unoccupied. They had a fair amount of daily exercise. They were not exposed to damp. The ventilation of the cells might have been better; but it could not have been very bad, when neither Dr Maclagan nor I noticed anything amiss during an inspection of seven hours and a half one day, and four hours the next. Then the victuals of all sorts were excellent in quality. There were no salt provisions. Fresh succulent vegetables, though not abundant, were not wanting. The very treacle was only negatively wrong, by displacing a more necessary article, and might indeed have suggested itself to some as an antiscorbutic, which it has seemed to be in other circumstances. There is no cause left, therefore, but the withdrawal of the milk.

But in the next place, the restoration of milk arrested the spread of the disease. In the latter part of September and beginning of October, the weakly prisoners were put, by the physician's orders, upon milk morning and evening. On the 19th October, the scurvy continuing to spread, the whole prisoners, by directions of the General Board, were allowed milk at least once a day. After this seven decided, and three suspicious cases commenced, before the 1st of November, and most of them during the first seven days of the interval. About the middle of November, in consequence of the recommendation of Dr Maclagan and myself, the whole prisoners

who had either manifested infirmity of health, or been five months continuously in confinement, were put on the full standard allowance of milk, and four ounces of meat, thrice a week. After that date, no new case of scurvy presented itself in the prison.

Lastly, milk cured the disease without any other antiscorbutic remedy. Much credit is due to Dr Malcom for his discrimination in regulating the treatment. The outbreak of epidemic scurvy under a liberal saccharo-farinaceous diet, was a new fact in the theory of the disease. But the food was different from that commonly used by the working classes in the general population. Milk was the article most obviously wanting. There was therefore no room for hesitation. The sick were not ordered lemon-juice or oranges, or any more fresh vegetables than they had always got in their broth and soup:—these were in reserve in case of necessity. But in the first instance the prisoners were simply put upon skimmed-milk, morning and evening, instead of treacle; and in the severe cases half a pound of meat was added at dinner-time, or four times a week, or daily, according to the urgency of the symptoms. The effect was unequivocal. At the time when Dr MacLagan and I inspected the prison, several severe cases were quite convalescent; and there was not a single scorbutic prisoner who did not state (some of them indeed stated of their own accord), that the symptoms of their disease began to abate a very few days after their diet was altered. Not a few of them were recovering without any farther change than the substitution of milk, and the gradual increase of exercise, as their limbs became capable of sustaining it.

I apprehend, therefore, that little doubt can exist that the want of milk was the main cause of scurvy; and still less, that the restoration of milk cured and arrested it.

It is here right to notice two objections to the view now taken, which will occur at once to any one acquainted with the history of the General Prison, and of other prisons in Scotland. If it be admitted that a too purely saccharo-farinaceous diet, without milk, was the cause of the epidemic of scurvy in the General Prison, whence, it may be asked, has it arisen, that in this very prison the same persons were under the same dietetic system for fourteen months before any case of scurvy appeared among them? And whence is it, that a diet nearly the same has been for some years in constant use in other Scotch prisons, especially that of Edinburgh, without a single case of scurvy having occurred there also?

To the first of these difficulties it may be replied, that the food not being defective in quantity, a long time, and the aid of concurring circumstances, were necessary to develop the disease. It is very possible that the prisoners might never have suffered, had not some other cause co-operated besides confinement and peculiarity of food. What this concurring cause may have been, it is not so easy to say. But some such cause or causes must have

concurred. Possibly the defect in ventilation may have helped. Yet the restoration of milk arrested the epidemic before this defect was remedied. Possibly the unhealthy "epidemic constitution," which notoriously prevailed at the time in all parts of Scotland, was not without its influence. Still, however, milk arrested the scurvy long before any improvement had taken place in this "epidemic constitution" in any other respect. Nor ought it to excite surprise, that no scurvy has appeared in the prison of Edinburgh. The diet there was indeed not very different from the diet of the General Prison. Still it was not absolutely the same. In Edinburgh, instead of the fish dinner of the General Prison, the prisoners have had four ounces of skimmed-milk cheese, with twelve ounces of bread; and instead of barley-milk, they have a second pea-soup day in the week. Then the site of the prison is elevated and remarkably airy. And, finally, there are not many prisoners confined there for long terms, only seventy of the males having been six months or more in confinement, at the time Dr MacLagan and I visited it in October last. It is doubtful, however, whether even all these considerations will account for the immunity of Edinburgh prison.

But the question may be left here, as there are no data for proceeding farther with it. And the utmost induction which the whole facts will bear is, that a diet too purely saccharo-farinaceous tends to engender scurvy: that it requires the aid, however, of some co-operating cause or causes, hitherto unascertained: that other causes, also not yet ascertained, may counteract its tendency: and that the use of milk will counteract it even when co-operating causes concur to develop its morbid influence.

It is important to inquire, whether there is any other evidence, besides the epidemic of the General Prison, to prove that a saccharo-farinaceous diet tends to produce scurvy. In fact, good evidence to the same purport is by no means wanting. Trotter in his *Essay on Scurvy*, notices a remarkable instance, the theory of which however he misunderstood. The Milbank epidemic of 1823, may be referred to the same cause. Since the beginning of the present year several detached cases have occurred in Edinburgh, also referable to the same dietetic error. And for two months past there has prevailed, among the labourers on the railways around Edinburgh, an epidemic scurvy, which has arisen under a diet as purely saccharo-farinaceous, as that of the Perth General Prison. The facts now adverted to will form the subject of the Second Part of this paper. But before proceeding to that topic, it is well to see what light can be thrown upon the dietetic cause of the scurvy in the General Prison, by submitting the food of the prisoners to scientific scrutiny, with the view of fixing more precisely, than has been done in the preceding narrative, the exact amount and nature of the nutriment supplied by it.

In regulating the diet of bodies of men, errors were constantly committed till a recent date, and are still not unfrequent, in consequence of the value of the food being estimated in practice by rough weight only, and not by its nutritive ingredients. In my first course of Lectures on *Materia Medica* in 1832, I pointed out the advantage of bringing to this investigation the aid of chemical analysis; through means of which an idea may be formed of the amount both of the total nutritive proximate principles in any food, and likewise of the nitrogenous principles among them, which had been previously proved by the researches of *Magendie* to be, in part at least, essential to the aliment of man. And taking advantage of the physiological inquiries of that philosopher, together with those of *Tiedemann* and *Gmelin*, *Krimer*, *Macdonald*, and others, on the digestibility of the proximate organic principles, and also of the chemical investigations of *Einhof*, *Vauquelin*, *Scrimshire*, *Davy*, *Braconnot*, *Brande*, &c., into the proximate constitution of the common articles of food, I constructed tables, showing the relative nutritive power of the chief articles of food, from both the vegetable and animal world. I am not aware that these views have ever been referred to by any one. But the tables were often copied, and must be in the hands of many.

It is unnecessary to say that others have since advocated analogous views, the importance of which is now generally admitted. Nor need it be added, that the theory of the subject has been propounded in a more perfect shape, especially by *Liebig*; or that the chemical details have been vastly improved since then, so that the data of my original tables, though founded on the best analyses of the day, are now susceptible of considerable improvement.

There are two ways of thus estimating the nutritive value of food, on the basis of chemical analysis. The proportion of digestible principles in each article having been first ascertained, the whole of these may be arranged in two divisions, according as they are derived from vegetable or animal substances. And for the most part, the nutritive power of dietaries may be valued by their relative abundance in animal proximate principles; because animal food abounds more than vegetable food in those which are nitrogenous. This method, however, is capable only of limited application to practice; for certain articles of animal food contain no nitrogen, such as fat, butter, and sugar of milk. But when duly limited, it may be practicably applied with convenience to simple dietaries, such as those of the working classes in this country.

The other method, which is theoretically more exact, arranges the whole digestible proximate principles, animal and vegetable indiscriminately, in two divisions, according as they contain nitrogen or not. And account is then taken of the quantity and proportion of all the leading constituents, nitrogenous and carboniferous, but especially the former.

By *Boussingault*, and others of the French school, as well as by

many of the followers of *Liebig* in Germany and Britain, it has been proposed to simplify the investigation very much by merely determining the proportion of nitrogen, and taking the quantity of that element in the food as the measure of its nutritive quality. But this method involves two important assumptions; first, that the amount and proportion of non-nitrogenous principles may be disregarded in a scale of nutritiveness; and, secondly, that all nitrogenous proximate principles which are digestible are equally nutritive. Now, these two propositions can by no means be admitted as true. On the contrary, it is extremely probable that, as regards the food of man at least, they are both of them false. And, therefore, in valuing the nutriment in a dietary by classifying its proximate principles, it is necessary to attend, first, to the total amount of digestible principles; then to the amount of nitrogenous principles; and, lastly, to the kind of nitrogenous principles present. Theory and experience together have fixed pretty nearly what is the total amount of digestible principles, and also of nitrogenous principles, which are required for maintaining health in various circumstances of bodily exertion. But no great advance has yet been made in settling what is the relative nutritive power of the nitrogenous and non-nitrogenous principles severally among each other; which of them are essential; which of them may take the place of one another; and in what relative quantity. Much has been done to advance this inquiry by the chemist. But chemists have too often erred in supposing chemistry to be all-sufficient for obtaining practical results; whereas, important blanks remain which can be filled up only by physiological experiment and observation.

Confining the attention at present to prison dietaries, it appears, from an examination of a variety of rates of diet for adult prisoners, and others in somewhat similar circumstances, that the rates which have given most satisfaction, as combining economy with wholesomeness, contain from twenty to twenty-five ounces of dry nutriment in the form of anhydrous, digestible, proximate principles. This will appear from the table in page 890. Now, the nutritive principles contained in the whole food, for one week, of a prisoner on the Treacle third rate, before the scurvy broke out in the General Prison, will be found to amount, on a daily average, to twenty-four ounces.¹ Hence there was no error, as respects quantity merely, in the nutriment of the dietary under which the scurvy originated.

On considering in the next place, the total amount of nitrogenous constituents in the several dietaries in the table which have been

¹ The data are, per cent. :—

Bread, 62.	Total, 10.5	Gluten.	Meat, 43.	Total, 27	mus. fib.
Oatmeal, 82.	„ 16.25	Do.	Fish, 21.	„ 21	Do.
Barley, 82.	„ 16.0	Do.	Skimmed Milk, 10.	„ 5	Casein.
Pease, 80.	„ 20.0	Legumin.	Butter Milk, 8.	„ 6	Do.
Treacle, 75.	„ 0.0	Nitrogenous.	Sk. Milk Cheese, 65.	„ 65	Do.

Several of these numbers are approximations only.

ascertained to be healthy, it will be seen that the quantity varies from four ounces and three-quarters to six ounces. Even in this respect, the treacle third rate of the General Prison at Perth is not absolutely in error. It contains four ounces and three-quarters of nitrogenous principles. It is consequently at the lowest extremity of the healthy scale, and therefore not perfectly trustworthy. But it cannot be absolutely pronounced faulty.

But on comparing the particular nitrogenous principles in the healthy dietaries with those in the prison dietary at Perth, an important difference will be observed. In the former animal casein, vegetable albumen, and the conjunct nitrogenous principles of muscular fibre, one, or more, or all of them together, amount to between one ounce and a half and two ounces and a half. In the Treacle third rate they amount to three-fifths of an ounce only. This is a material deficiency, if the defective principles cannot be replaced by other nitrogenous principles. And it will appear in the sequel that they cannot be replaced, so as to constitute a healthy dietary for prisoners, by the nitrogenous principle gluten, which constituted four ounces, or the great mass of nitrogenous nutriment in the prison diet previous to the appearance of scurvy.

It may be said, this is a small difference to be thought sufficient to account for such serious results. But, in the first place, the difference is not so small as may appear on a hasty view. If it be necessary to constitute a sound dietary that one or more of the principles, vegetable albumen, animal casein, and the nitrogenous constituents of meat, be present, the faulty diet contained less than a half of the lowest quantity, and scarcely a third of the average, contained in the healthy dietaries. Then, the great slowness of the operation of the faulty diet, six months having in general been requisite, shows that the fault was not an excessive one. And, farther, it is remarkable, that all the late epidemics of scurvy in the British prisons, which have been described so minutely as to allow of a complete analytic view of the food being taken, seem to have occurred when the dietary for some time before presented precisely the same deficiency.

In the First Part of this paper I have confined myself to the evidence which the Prison-epidemic at Perth affords of the tendency of a saccharo-farinaceous diet to induce scurvy, and of milk to arrest it when originating under such circumstances. At the present period, when this disease is unfortunately showing itself, on account of the same error in diet, among the general population in various parts of the country, and is likely to extend for at least two months to come, it is important that the utility of milk be immediately and generally known. In the Second Part, while further evidence will be adduced of the injurious tendency of a saccharo-farinaceous diet, and of the curative power of milk, some observa-

tions will also be added to guard against misconstruction of the views which have been stated above, and which, as they stand, may be erroneously thought hostile to doctrines older and more familiar, and by no means incompatible. For the present it is sufficient to observe, that prior observations establish a probability that, even under a saccharo-farinaceous diet, scurvy may be both warded off and cured by means of succulent vegetables, containing vegetable albumen.

TABLE I.

Showing the Nutritive Proximate Principles in various Dietaries, HEALTHY, CONVALESCENT, and SCORBUTIC. The numbers represent ounces avoirdupois.

I. HEALTHY.	Total	NON-NITROGENOUS.			NITROGENOUS.					
		Starch	Sugar	Fat	Gluten	Legum.	Album.	Casein	Mus. fb	
1. Scott. Prison standard	25·2	17·8	1·32	0·11	3·96	0·13	0·03	1·36	0·55	6·03
2. Glasgow Prison, 3d rate	25·0	18·2	0·82	0·16	4·07	0·13	0·04	1·36	0·23	5·83
3. Edinburgh Prison, do.	24·3	17·8	1·56	0·13	3·89	0·25	0·04	0·38	0·23	4·79
4. Milbank Prison, 1821	25·0	19·4	...	0·55	3·01	0·47	0·36	...	1·21	5·05
5. Do. Convicts, 1840	23·1	17·9	...	0·57	3·06	...	0·23	0·40	0·99	4·74
6. Dublin Bridewell, 1847	19·5	13·4	0·03	0·60	2·93	...	...	1·57	0·94	5·49
II. CONVALESCENT.										
7. Edin. Inf. full diet	19·4	11·6	1·10	1·26	2·36	...	0·01	1·50	1·65	5·52
8. Fever conval. diet	20·1	11·1	1·50	3·88	1·82	...	0·49	0·03	2·16	4·40
III. SCORBUTIC.										
9. General Prison, 1846	24·2	17·8	1·56	1·11	3·96	0·13	0·03	0·07	0·55	4·74
10. Milbank Prison, 1823	20·9	16·6	...	0·20	3·80	...	...	...	0·30	3·98
11. Do. Soldiers, 1840-1	18·9	15·3	...	0·38	2·97	0·23	...	...	0·78	3·78
12. Do. do. improved, 1841	19·2	15·0	...	0·38	3·04	0·21	0·04	...	0·64	3·89

NOTE.—1. The Standard third rate of the Scotch prisons, as used in the General Prison at Perth, in healthy years. 4. Diet of Milbank Penitentiary, London, before being changed to No. 10. 5. Milbank diet of civil convicts, who remained free of scurvy, while the military prisoners were attacked under the diet, No. 11. The data I owe to Dr Baly, physician to the prison. 6. The present diet of the Dublin prison, where male convicts are kept for long terms. 7. Edinburgh Royal Infirmary Full diet, under which, as will be shown in Part II, scorbutics promptly recovered. 8. Convalescent diet of a fever patient of the wealthy ranks, rapidly recovering flesh and strength. 9. Diet of the General Prison before the scurvy broke out. 10. Ditto before the Milbank epidemic at London in 1823. 11. Ditto before the military prisoners in Milbank Penitentiary were attacked with scurvy in 1840-41. 12. Improved diet on that occasion, but found ineffectual.

The individuals subjected to the dietaries in the I. and III. Divisions were all in confinement for long terms.

Before concluding this portion of my paper it may be remarked, that the facts stated in the preceding observations, admit of being applied to correct some of the doctrines lately adopted by systematic authors as to the causes and treatment of scurvy. But these applications may be postponed with advantage until the close of the Second Part, in the course of which other illustrative facts of the same purport will also be adduced.

(*To be continued.*)

ARTICLE II.—*Case of Imperfect Vision from Irregular Refraction, with Night-blindness, &c., remedied.* By ROBERT HAMILTON, M.D., F.R.S.E., &c.

(*Read to the Medico-Chirurgical Society of Edinburgh, April 7, 1847.*)

THE following case presented itself at the Edinburgh Eye Infirmary more than three years ago, and but from accidental circumstances would have been sooner reported to the society. It was a complicated case of various affections, all of which were congenital; and one of them, a modification of irregular refraction, of such rare occurrence that, so far as I am aware, only one similar instance has previously been described in the records of science. I trust, therefore, that a short notice of it will be favourably received by the society.

I take the following account of symptoms from my case-book:—
W. A. æt. 25, coach-painter.

Subjective Symptoms.—The patient complains—1st, of incomplete *night-blindness*. After sunset, and on the prevalence of twilight, he ceases to have any perception of the objects around him. One night lately he had occasion to walk, with a friend, twenty miles into the country, and throughout he could not perceive a single object, and was, to all intents and purposes, stone-blind. On the other hand, when he approaches artificial light, which is conspicuous and strong, he sees tolerably well. Thus, if a street is well supplied with good gas-burners, he finds little inconvenience, and in a well illumined room, he can even read, if close to the light.

2dly, The patient complains of another defect of vision which annoys him nearly as much in the day time as the symptoms just detailed do under night, and which is referable to some *irregular refraction* of the dioptric apparatus of the eye. He illustrates this complaint by such statements as the following:—On looking at a clock, if the hands point perpendicularly, he cannot distinguish the hour which they indicate; but if horizontally, he finds no difficulty. It is the same with the spokes of a wheel; when quite close to the object, he can see them all, though not equally well; but when somewhat distant, he can perceive only those which are horizontal. So is it with any article of furniture which is grooved or embossed.

Such lines as run horizontally he observes without difficulty, whilst those that are perpendicular are undistinguishable.

He also complains that in attempting to draw or paint, it may be letters on a sign-board, or any object where vertical lines prevail, he finds it impossible to draw the perpendicular lines with any degree of correctness, and unwittingly directs them obliquely or slanting, whilst he draws horizontal lines with accuracy and precision. Accordingly, when required to paint any piece of work where upright objects predominate, he has adopted the plan of laying the object or picture, where possible, on its side, setting it erect when finished. Experience and habit have also taught him a simple method of correcting his perceptions of perpendicular lines, and which consists of nothing more than bending his head at a right angle with his body, upon which upright objects become distinct, and accurately represented; whilst the horizontal ones become proportionably inaccurate and obscure.

3dly, The patient evidently labours under a considerable amount of *myopia* (near-sightedness), and more in one eye than in the other, complaining that everything at a little distance appears undefined and as in a mist.

Bearing upon both the irregular refraction and the *myopia*, the patient states that if when an object is quite beyond the focal distance of the eye, and everything appears in obscurity, he puts his finger at the outer angle of the eye-lids, and draws it somewhat outwardly (the only visible effect of which is somewhat to narrow the *rima palpebrarum*, and he is not conscious of its exerting any pressure on the eye-ball, though the shape of the cornea may be modified), he sees as clearly as if the last named defects had no existence. He finds the greatest advantage from this manœuvre in the left eye; but when he employs it upon both, the improvement is still more decided. In the same way, when an object is so small that he cannot see it distinctly, however near it may be, he finds that by having recourse to this kind of manipulation he greatly improves his vision, and sees, he believes, as well as other persons. This, however, necessitates the employment of both his hands in viewing objects, whether near or distant; and so completely interferes with the manual part of his business, that it makes it nearly impossible for him to prosecute it longer, unless some expedient be devised for overcoming the imperfection of his sight.

Objective Symptoms.—Upon a careful examination of the eye, nothing abnormal is perceived. The iris appears natural, and is readily influenced by the different shades of light. The pupil is not at all remarkable as to size. The deeper seated parts of the eye appear quite healthy. The patient has no pain in the eye; nor is he liable to headache. He does not labour under any disorder of the digestive organs, and considers himself in perfect health.

History.—The patient believes that from his earliest years, the state of his vision has been always the same as it now is. When

an infant, it used to be remarked that nothing amiss could be perceived in his eyes. When a schoolboy, his companions discovered he was myopic, and that his vision was otherwise peculiar. When nine years of age, his night-blindness was observed by his relatives; and his own impression is, that he never saw better under night than he now does. He regards his eye—with the exception specified—as very correct in the marking of outlines; and he is very ready in detecting the nicest shades of colour, so as to match them with facility and precision.

The analysis of this somewhat complex case of disordered vision presents little difficulty. The incomplete night-blindness, not uncommon in congenital cases, such as this, seemed quite beyond the influence of any remedial measures which could be proposed: whilst, on the other hand, the myopia, and the irregular refraction of the lenses, presented a fair prospect of improvement from the resources of the art.

As, however, the case in the last particular specified was a rare and interesting one, it occurred to my colleagues and myself, that it might prove interesting to Dr Allen Thomson, whose attention to this and other branches of physiological research is well known; whilst at the same time, we might avail ourselves of his intelligence and skill in applying the appropriate means of relief. In this anticipation we were not disappointed. Dr Thomson minutely examined the patient's eye, and speedily detected the true nature of the principal defect of the visual apparatus. He has kindly furnished me with the notes he took at the time, and I cannot do better than avail myself of them verbatim, so far as they bear upon this most interesting part of the case.

After remarking that the right eye is the more defective of the two, and consequently not so much employed, Dr Thomson states that he measured the diameter of the base of the cornea, and found it slightly greater, vertically than horizontally, being shaped somewhat irregularly, and the diameter projecting slightly upwards and inwards.

Dr T. not having the means of applying any apparatus to measure accurately the curvature in the transverse and vertical directions, could hardly detect any difference of curvature in the different directions; or rather, he could not be certain that any existed. He thought, however, that he perceived a somewhat more marked curvature in the transverse diameter.

Dr T. repeatedly endeavoured to ascertain the comparative focal distance of the eyes in a vertical and horizontal direction, with the head of a pin, and double hole in a card; and found in the left eye—the holes being horizontal—the image became single—on one occasion, at six inches, and on another at from $5\frac{1}{2}$ to six inches; and when the holes were placed vertically—on one occasion—at $8\frac{1}{2}$, and, on another, at nine or $9\frac{1}{2}$ inches. Upon the right eye it was more difficult to make observations, owing to the degree of

myopia: the relation, however, of the horizontal to the vertical focus, appeared to be as $5\frac{1}{2}$ to $6\frac{1}{2}$ inches.

From these observations, it appeared that the left eye is more unequal in its vertical and horizontal refraction than the right one; while the right eye is more myopic than the left.

Dr T. also found that two strong dark lines, half an inch long, drawn at right angles, upon white paper, were seen by the patient at the distance of eighteen inches, but at the distance of three feet the perpendicular line was quite imperceptible. Also, that a well-defined circle of half an inch diameter, at the distance of eighteen inches, was seen pretty distinctly; but at a greater distance, the lateral or vertical portions, or segments, were lost to view, whilst the upper and lower parts remained quite distinct. If the lines marking the vertical segments were made thicker and stronger, the defect was somewhat overcome, but not entirely so.

When the patient was made to look at a strong light, such as that of a gas lamp, through a pin-hole in a card, the bright light appeared, not in its natural form, as a round spot, but elongated (nearly double) from above downwards to the left eye; and the same, though in a less degree, to the right. In both instances the lower end of the elongated image inclined slightly inwards, but more so as it respected the right than the left eye.

From these and other experiments, and from the symptoms of the disorder, as already detailed, no doubt could remain as to the true nature of the case; and we then put the patient into communication with Mr John Adie, whose scientific acquirements, and large experience, in this department of art are well-known. This gentleman at once adopted views regarding the cause of the defective vision similar to those previously entertained; and having had some experience in a somewhat similar case, and having by him some plano-concave cylindrical lenses of different foci, from two feet to eight inches in length, he tried their effect, and found that they operated beneficially, and the weakest the most so, the cylindrical surface being made to act horizontally, or from side to side. The effect of this lens was to lessen the refracting power of the eye transversely, and probably to equalize the transverse curvature with the perpendicular one. Similar glasses for both eyes were fitted into a pair of spectacles, and the result was most striking. The patient could without impediment, and with the greatest satisfaction see equally well over a considerable range of distance, and with the conviction that his vision was as good as that of those who had no imperfection or defect of the kind. In a word, so far as the irregular refraction and myopia were concerned it seemed a perfect remedy, enabling him to follow his avocations with complete comfort and entire satisfaction. As the patient sees best transversely, when not using spectacles, and as the effect of the cylindrical lenses is to lessen the refracting power, it is probable that after the correction, the eye is adapted to distinct vision by some internal change.

Remarks.—The most common variety of irregular refraction, which presents itself to observation, is undoubtedly that one in which there occurs double, triple, and even more frequent representations of any object that is contemplated. This variety of the disorder is, we believe, not very uncommon; and frequently exists to so moderate an extent, that it does not particularly annoy the individual who labours under it. It is, moreover, generally known, that often there is double vision, not from any irregularity of the refracting media, but simply from disturbance of the sensorium, and a want of the consentient play of the two eyes.

The irregular refraction of the present case is a disorder of a totally different character, whose cause must exist in the dioptric media, and arise from one or more of the lenses refracting the rays proceeding from the object contemplated, to a nearer focus in one plane—as the horizontal—than in another—as the vertical,—or in any other which may occur round the sphere. This, like the case of multiple vision, occurs more frequently than is generally supposed, and, in some instances, to the exceeding detriment of the eyesight. We rest the former of these assertions not so much upon the observations which are made in our ophthalmological works,—for there they are exceedingly scanty,—but upon various statements which have been made by practical opticians, some of which will appear in the sequel. The latter observation again,—as to the great detriment which results, is sufficiently apparent from the case just related: and may be additionally illustrated by a brief reference to the following one. “I discovered,” says the learned narrator, “that in reading I did not usually employ my left eye, and that looking carefully at any near object it was totally useless: in fact, the image formed in that eye was not perceived except my attention was directed particularly to it. Supposing this to be entirely owing to habit, and that it might be corrected by using the left eye as much as possible, I endeavoured to read with the right eye closed and shaded, but found that I could not distinguish a letter, at least in small print, at whatever distance from the eye the characters were placed.”¹ Notwithstanding this great imperfection, this eye, like that of our patient, was, by appropriate means, so accommodated that it became in every respect useful and efficient.

The *rarity* of this particular disorder may be judged of by the fact that Professor Airy, to whose interesting case we have just alluded, states, in the year 1825, that after many enquiries, he has not been able to discover that a defect similar to that he described as his own, had ever previously been noticed. The case now before the society will form a second instance: for Dr Young’s eye, as described by himself, and sometimes referred to, though decidedly abnormal, can scarcely come within the category, inasmuch

¹ Cambridge Phil. Transactions, vol. ii. 267, 1827.

as he tells us that the malformation had never occasioned him any inconvenience. At the same time, it is, we believe, nothing more than the truth, that several similar cases have been noticed. Thus the late distinguished secretary of the Royal Society, in his learned paper in the *Philosophical Transactions* for the year 1801,¹ informs us that Mr Cary the optician, mentioned to him that he had frequently seen cases of individuals with irregular refraction of the eye, who were obliged to hold a concave glass obliquely, in order to see with distinctness; counterbalancing, by the inclination of the glass, the too great refracting power in the direction of that inclination: and Mr John Adie has mentioned to me that he saw at least one very marked case several years ago, in which the sufferer, a lady, after an attack of fever, had the same kind of defective vision to a great extent, and required glasses of the peculiar kind already referred to, and which afforded a complete remedy for her infirmity. In this case the line of disfiguration was not the same in the two eyes: in the one it was at an angle of about 45° from the perpendicular outwards, and in the other nearly at right angles. It will often too, we believe, be found in cases of irregular refraction in which the vision of the disordered eye is very much disregarded, that the sight is not lost, but only defective, and in a way that might be remedied by the means found available in the present case. From this it follows that the cases of this description, though not numerous, occur more frequently than they have been either understood or described.

It would be interesting to ascertain in cases of this kind, to the irregularity of what precise parts of the dioptric apparatus the defect was due. This, however, from the minute size of the several lenses, and the obscurity in which some of these are veiled, is no easy matter. So much is this the case, notwithstanding Professor Thomson's careful examination of the case before us, no very satisfactory result could, in this way, be reached. From the very little that is said in our works on eye-diseases, it would appear that the cornea is the lens whose integrity has been most suspected. This apparently may be gathered from Dr M'Kenzie's brief notion of the subject in his practical Treatise,² where, commenting upon the case of the Astronomer Royal, he remarks, "This (irregular refraction) would take place if the cornea, instead of being a surface of revolution in which the curvature in all its sections through the axis must be equal, were of some other form, in which the curvature in a vertical plane is greater than in a horizontal." Again: it is stated, "The use of the spherical surface was to correct the general defect of the too convex surface." And once more: "By placing a cylindrical spheric line across the defective eye, its defect will be (approximately at least) counteracted."

The supposition, however, that it is the cornea that is solely, or

¹ Part I. p. 29.

² M'Kenzie, *Diseases of the Eye*, 3d Edition, p. 795.

even principally, implicated in the production of this disorder is much opposed by the late Dr T. Young's remarks in his own case. He observes, "My eye, in a state of relaxation, collects to a focus on the retina, the rays which diverge vertically from an object at the distance of 10 inches from the cornea, and the rays which diverge horizontally from an object at seven inches distance. For if I hold the plane of the optometer vertically, the images of the line appear to cross at 10 inches; if horizontally, at 7 inches. The difference is expressed by a focal length of 23 inches." Now, notwithstanding this very great disparity in the refraction of the axes of the cornea, Dr. Y. remarks, "I have never experienced any inconvenience from this imperfection; nor did I discover it till I made these experiments; and I believe I can examine minute objects with as much accuracy as most of those whose eyes are differently formed." He adds, "The difference is not in the cornea, for it exists when the effect of the cornea is removed. The cause is without doubt, in the obliquity of the Iris (Uvea), and of the crystalline lens which is nearly parallel to it, with respect to the visual axis: this obliquity will appear from the dimensions already given to be about 10 degrees. . . . There would be no difficulty in fixing the glasses of spectacles, or a concave eye-glass of a telescope, in such a position as to remedy the defect."¹

But however desirable it may be to obtain precise information as to which of the lenses is, in any case affected, and however difficult to succeed in the investigation, it is satisfactory to know that, for all practical purposes, this knowledge is far from being absolutely required; and the necessary examination of a defect of this kind is in fact a very easy matter. It is merely necessary to write down fully the description of the appearance of a brilliant point supplied by any strong light at different distances in the following method, clearly described by Mr Airy:—"I made a very fine hole with the point of a needle in a blackened card, which I caused to slide on a graduated scale; then strongly illuminating a sheet of paper, and holding the card between it and the eye, I had a lucid point upon which I could make observations with great ease and exactness. Then resting the end of the scale upon the cheek-bone, I found that the point, at the distance of 6 inches, appeared a very well defined line inclined to the vertical about 35° , and subtending an angle of 2° (by estimation). Again, at the distance of $3\frac{1}{2}$ inches it appeared a well defined line at right angles to the former, and of the same apparent length. It was necessary, therefore, to make a lens which, when the parallel rays were incident, should cause them in one plane to diverge from the distance of $3\frac{1}{2}$ inches, and those in the other plane from the distance of 6 inches." The individual, then, labouring under this infirmity, has merely to write down

¹ Op. cit. pp. 39. 40.

fully the appearance of the brilliant point upon the illuminated paper, as seen through the hole in the card, at different distances; and the theoretical optician can thus invent a glass which will render the vision of the eye distinct. It was in this way that Mr Airy procured a lens which answered these requirements; it satisfied his wishes in every respect; so that he found the eye he once feared would become quite useless, could be used in almost every respect as well as the other.

This conclusion is in the highest degree satisfactory; and I trust will frequently be reached as successfully in subsequent practice as it has been in the case I have now had the honour so imperfectly to detail.

ARTICLE III.—*Contributions to Pathology and Rational Medicine.*—

By JOHN HUGHES BENNETT, M.D., F.R.S.E., Lecturer on Pathology, and the Practice of Physic; Director of the Polyclinic, at the Royal Dispensary, Edinburgh, &c.

NO. VII.—*On Exudation.* PART II.—*Its Development (Continued.)*

ENCYSTED GROWTHS.

THE different crypts and follicles of the skin, and mucous membrane, as well as several of the excretory ducts of internal organs may become obstructed, and as a consequence enlarged and hypertrophied. It is true such growths usually consist of one or more elementary tissues, and should not on this account be constituted a class of themselves. Their importance in a practical point of view, however, as well perhaps as the difficulty of knowing where to describe such compound growths, warrant our speaking of them under a separate head.

Encysted growths are composed of a cyst or membranous envelope, enclosing various kinds of contents. They differ greatly in size, situation and structure, which renders their arrangement somewhat difficult. By some they have been divided into *simple* and *compound*, according as the tumour is formed of one cyst, or is composed of several. By others they have been arranged according to the nature of their contents into *hygromatous*, or aqueous; *atheromatous*, resembling gruel; *melicerous* honey-like, and *steatomatous*, or fatty encysted growths. The latter mode of division is very faulty, the atheromatous, melicerous, and steatomatous varieties being all more or less fatty, whilst some kinds of compound encysted tumours contain different contents in different cysts. But as there can be no doubt that the peculiar contents give to these growths a distinctive character, we shall first speak of

them as simple or compound, and then describe their different kinds of contents.

Simple encysted growths.—These growths are formed of a cyst composed of fibrous tissue, lined by a smooth membrane. Sometimes the membrane is structureless, or only composed of areolar tissue. At other times it is lined with a distinct layer of epithelial cells, the nuclei of which are very apparent on the addition of acetic acid. The former kind constitutes the vesicles so frequently found in the plexus choroides, kidneys, ovaries, &c., varying in size from a pin's head to that of a hazel nut, or even walnut, usually with aqueous contents. The latter kind constitute the cystic growths arising in the follicles of the skin, in the mamma, ovaries, testicles, &c., which frequently reach the size of an orange, are sometimes much larger, and vary greatly as to the nature of their contents. For the most part they are only sparingly supplied with blood-vessels, and seldom cause inconvenience except from the deformity they occasion when situated externally.

Compound encysted growths are of two kinds. The external sac may contain on its internal surface secondary or even tertiary cysts, which may be sessile or pedunculated—or the growth may be divided into numerous departments by divisions of the fibrous sac. This is the true multilocular encysted tumour. The external cyst in all these cases is formed of fibrous tissue. The internal surface is smooth, sometimes with, at others without an epithelial layer. The primary as well as the enclosed cysts are for the most part richly supplied with blood-vessels, and hence they are peculiarly prone to contain exudation which has undergone various kinds of development, as well as to ulcerate. These growths frequently attain an enormous size, measuring several feet in circumference, whilst their internal membrane may secrete more or less rapidly gallons of fluid.

The *contents* of encysted growths are very various, and give, as we have previously stated, a peculiar character to them.

1. The contents may be a perfectly colourless fluid, resembling water, or the limpid serum so frequently secreted in the lateral ventricles of the brain. It is structureless, and chemically contains a minute proportion of salts, and a certain amount of albumen which coagulates on boiling. Such are frequently the contents of so called serous cysts, or false hydatids of the plexus choroides, kidneys, ovaries, &c. A *Hydrocele*, and other dropsies of shut serous sacs, may be looked on pathologically as constituting a form of hygromatous encysted growth.

2. The contained fluid may have an amber or golden yellow colour, and resemble the serum formed after the coagulation of the blood. It is still structureless, but contains a large amount of albumen, as is proved by the action of heat and nitric acid.

3. The contents are more or less gelatinous, sometimes slightly so, like weak gelatine—at others firm, capable of being cut with a

knife like tolerably strong glue or firm calves-foot jelly. The colour of the gelatinous matter may vary from a slight yellowish tinge, to a deep amber, or brownish yellow colour. Sometimes this matter is structureless, at others it may be seen to contain very delicate filaments, combined with pale oval bodies, the outlines of which become stronger on the addition of acetic acid. This re-agent frequently causes the gelatinous mass to coagulate into a firm white fibrous structure, capable of being separated by needles, and presenting all the structure of filamentous tissue. This kind of contents is common in the ovary, and we have seen it in the kidney and other organs. On one occasion the gelatinous matter in the kidney, contained numerous granules, and more than once we have found in the centre of clear amber masses of it a creamy white substance, either wholly granular, or in the process of formation into pus corpuscles.

4. The cyst may be distended with epithelial scales, which have evidently been thrown off from its internal surface, and become compressed together, and partially broken down. Hence on examination, clusters of such scales may be found mixed with numerous debris, and fat granules and globules, sometimes with crystals of cholesterine. The contents of the cysts are usually of a white or slightly yellow colour, which is sometimes fluid, at others semi-solid. The *molluscum contagiosum* of dermatologists is thus constituted. The small cystic swellings for the most part originate in the crypts of the skin, which are more or less enlarged.

5. The contents may consist principally of fat, either amorphous, crystallized, or organized, that is cellular. If amorphous they resemble honey, constituting the *melicerous* growths of morbid anatomists. In many cases, however, where the yellow colour is uniform, when it breaks down under the finger and closely resembles honey to the naked eye, faint cell walls more or less compressed together may be observed by the microscope.

At other times the fatty contents are of a whitish colour, occurring in masses of a pearly aspect and smooth surface, mingled with a roughened yellowish, and more granular fatty matter. This white matter consists of numerous crystals of cholesterine placed in a close juxta-position,—the granular fatty matter of oil globules and granules, mixed with broken up crystals, epithelial scales, and sometimes the products of fibrinous exudation. Such is the general structure of the *atheromatous* encysted growths of various authors.

Again the fatty matter may be more or less lardaceous in character, and consists of beautiful round or oval cells, some of which are distinctly nucleated. Mixed with these may be a granular matter, combined with epithelial cells or their debris. At other times no distinct cells can be observed, only a granular or amorphous mass, the most part of which is soluble in ether. This constitutes the *steatomatous* encysted growth.

6. Many encysted growths contain hair and teeth. The hair is occasionally inserted into the walls of the cyst, at others exists loose mixed with the fatty or other contents. They are exactly of the same structure as the hairs in other parts of the body, having distinct bulbous roots. When attached they are surrounded by a follicle in the lining membrane, when loose they have been evidently grown in follicles, and afterwards become separated. Their apices are frequently split up into several fibres in the longitudinal direction. The *teeth* belong sometimes to the first, and sometimes to the second dentition. They present on section the usual structure of cavity, with ivory, enamel, and bone. Sometimes they are found embedded in a follicle of the lining membrane, at others like the hairs quite loose.

7. Occasionally the cysts contain lymph, softened fibrine, and purulent matter, composed of plastic, pus, and compound granular cells, the result of exudation into their cavities. Occasionally the serous fluid is more or less mixed up with extravasation of blood, giving to the contained liquid various colours and appearances, according to the period the extravasation has taken place. Thus it may be red, dark brown resembling coffee, of a dark greenish tinge, &c., &c. Sometimes it is of a dark bluish or blackish tint from excess of pigmentary deposit.

8. Sometimes the contents of the cystic growth are formed of a solid exudation, which has undergone the sarcomatous transformation as previously described, and wholly consists of fusiform cells. The exudation poured into such cysts may pass into the cancerous formation, when the characters we have described will be associated with those yet to be detailed which distinguish cancer.

9. Some cysts contain the peculiar secretion of the organ in which they are found. Thus cysts in the liver are full of bile, and those in the kidney of urine.

The mode in which encysted growths are developed is generally by the hypertrophy of pre-existing tissues, whereby canals are distended, follicles or vesicles enlarged, and their walls thickened. Thus the simple cysts in the plexus choroides are owing to effusion of serum into the areolar spaces of the villi of the membrane, and the subsequent distension of the membrane. Those in the kidney are owing to the distension of uriniferous tubes above an accidental obstruction, in the same manner that the whole kidney may become encysted from obstruction of the ureter. In like way the crypts of the skin or follicles of mucous membranes become obstructed at their orifice, and their contents accumulating, gradually distend the walls, which become enlarged and thickened. Simple cysts in the ovary become dilated by enlargement of the Graafian vesicles, either deep in the stroma of the organ, or on the surface, when they grow outwards and become pedunculated.

The origin of compound encysted tumours is not so well deter-

mined. It is very probable, however, that in most cases they consist of clusters of simple cysts, which become compressed together, and are at length surrounded by a capsule. They are most common in the ovary; and here we can readily understand how successive growths of Graafian vesicles may give rise either to the appearance of secondary or tertiary cysts, or to the multilocular form we have described. In all cases as the compound cyst enlarges, the internal ones open into each other by ulceration. Hence, in very old compound cysts we find one large cavity, with the traces on its internal wall of previously existing cysts, or bands and divisions, with pouches between them, indicating where previous cysts had existed.

Another mode in which compound cysts are formed is by the gradual enlargement of the areolæ in newly formed fibrous tissue. On examining thin sections of sarcomatous growths, we observe the filamentous tissue arranged in a circular form, enclosing spaces varying in size from the $\frac{1}{50}$ of a millimetre, to several inches in diameter. When of a certain size they are often lined by a distinct epithelial membrane, and many contain serum, blood, or exudation, either in a granular or fibrous state. Such growths have long been known under the name of *cystic sarcoma*.

The diagnosis of encysted growths belongs to the *special* pathology of each organ affected by them, and will constitute the subject of a distinct communication. It need only be mentioned here that a knowledge of the structure of these tumours is not unimportant, as an examination of the fluids discharged from them frequently enables us to speak with certainty regarding their nature.

An acquaintance with the structure and mode of development of these growths must convince us that there are only two modes of *treatment* applicable—namely, 1st. entire extirpation, and 2d. destruction of the secreting surface in their interior.—The idea that a dense fibrous envelope, often containing numerous secondary cysts, all richly furnished with blood-vessels can be absorbed through the agency of mercury, iodine, or any other drug, must be purely imaginary. Neither can it be supposed, that as long as any of the cysts remain intact, a cure can be hoped for. But we have seen that the natural course of these secondary cysts is to open into each other, until at length only one large cyst remains. Under such circumstances a rupture, by exciting adhesive exudation, and thus destroying the secreting surfaces, or inducing adhesions between them may cause a radical cure. It is in this manner that the occasional spontaneous removal of certain ovarian cysts are to be explained. In one such case, we had an opportunity of examining under the care of Dr Makellar, the walls of the compound cyst were found after death shrunk, and thickened, and the whole growth in process of obliteration.

ARTICLE IV.—*Case of Popliteal Aneurism, unsuccessfully treated by Compression.—Sloughing of the Tumor and Ligature of the Femoral Artery—Mortification of the Limb and Amputation.—Recovery.* By JONATHAN TOOGOOD, Licentiate of the London College of Physicians, &c., Torquay.

(*Extracted from a Letter to Professor Syme.*)

WILLIAM LAURENCE, a tailor, aged thirty-six, became a patient of Mr Jolley, one of the surgeons to the Torbay Dispensary (to whom I am indebted for the notes of the case), on the 9th of February last, on account of popliteal aneurism. His attention was first directed to it about a year since, but latterly it prevented him from walking, and during the last fortnight had confined him to his bed. He attributed it to jumping suddenly off the boards on which he worked, from a feeling of cramp and numbness of both leg and foot, to such a degree, at times, as to render him incapable of the slightest motion. He was much attenuated with loss of appetite and very rapid pulse, and got but little sleep, from his dread of an operation, which he had been told was necessary. The tumour occupied the whole of the popliteal space, and the limb was much reduced in size.

On the 16th of February, firm compression was made on the tumor, and on the femoral artery, which was gradually increased to the 20th, when the pulsation in the tumour was less perceptible, but he complained that the pressure disturbed his rest, and the leg was very odematous. It was discontinued on the following day, in consequence of a dark spot having been observed on the tumour, and of his general state being worse.

On the 26th the tumour burst, and he lost about a pint of blood, and became very faint. It was stopped by pressure made with a pledget of lint.

27th. Was much sunk from the loss of blood. On removing the bandage and examining the part, a large clot of dark-coloured blood fell on the ground, this was followed by the loss of about six ounces of fluid blood, and on making pressure it again ceased.

28th. Has passed a bad night, and is evidently worse, but has had no return of bleeding.

March 1st. A ligature was applied to the femoral artery without any loss of blood. The aneurismal tumour was poulticed, and on the 3d there was a free discharge of fetid pus.

March 2d. Has not passed a good night, the œdema of the leg and thigh is much less, and the temperature the same as in the other limb.

He continued much in the same state until the seventh, when the temperature of the limb was lower, and the foot and toes appeared of a dark hue, and the skin was shrivelled.

8th. The aspect of the limb is more unfavourable, the foot and lower part of the leg are becoming gangrenous.

At two o'clock P.M., the thigh was amputated, the ligature on the artery remained firm, but there was very considerable hæmorrhage during the operation, and it was only by free and constant application of stimulants, that he survived. From this time the case progressed favourably, the ligature which was applied the first of March, came away on the eleventh, and the remaining ones on the twenty-first, and on the seventh of April, the stump was quite healed.

On examining the leg, it was found to be twice its natural size, the integuments were of a brownish hue, more than half the foot and the lower part of the leg livid, and the ends of the toes black. Under the patella there was a large quantity of pus, and the muscles and cellular tissue were also infiltrated with purulent matter.

I saw this patient with Mr Jolley on the first of March. He was lying in bed with a tourniquet on the femoral artery, and the foot and leg to the knee bandaged with a flannel roller. The whole limb was greatly enlarged and œdematous. He was extremely weak, emaciated and pale, with a very rapid and irritable pulse. His state was so critical, that I apprehended a return of hæmorrhage would render any attempt to relieve him hopeless. It was doubtful, even, whether he could bear the removal from the miserable room in which he lay, and be placed on a table in a larger and lighter one. The question now was, whether, under the circumstances, it would not be safer to amputate the thigh at once, than attempt to tie the artery, but the patient's objection was such that it was determined to adopt the latter course, even should it be necessary afterwards to remove the limb, which was more than probable. I regard this case as one of those extraordinary escapes which we sometimes witness in practice, and if I had entertained any doubt as to the safest and best course to be pursued in such diseases, the result of this case would have confirmed my opinion. I have tied the artery and assisted others many times in popliteal aneurism, without a single instance of failure, and I greatly prefer this simple and safe operation, which is attended with infinitely less pain, trouble, and anxiety, to the clumsy, tedious, and uncertain treatment by compression.

NOTE BY PROFESSOR SYME.—In the Dublin Medical Press for the 12th May, Dr Bellingham who seems to have constituted himself the champion of "pressure" has thought proper to attack me for urging as an argument in favour of the operation "that, as tying the femoral artery for popliteal aneurism evidences a higher degree of skill than the successful treatment of the same disease without operation, he (Mr Syme) will continue to perform it." Now, my only reply to this charge is that I never expressed the preposterous sentiment imputed to me; and that there may be no room for mistake upon the subject, I here reprint the passage upon which the accusation is founded. "The question be-

tween ligature and compression seems very much the same as that between passing a catheter and puncturing the bladder for retention of urine. If the surgeon can with safety relieve his patient by means of the catheter, he should certainly do so. But if, instead of drawing off the water, he can in this way only lacerate the urethra, and make false passages through it, his duty is plainly to thrust a trocar into the bladder. Now, as it is not likely that all the gentlemen I have from year to year the honour of addressing in my lectures, will be able, throughout the whole course of their practice, to avoid puncturing the bladder, it may be thought improper for me, during seventeen years' discharge of hospital duty, to have never resorted to this operation—even in a single instance. But while a clinical teacher has to regard the interests of his pupils, as well as those of his patients, the former must always be held secondary to the latter. If it is in my power to afford relief by the catheter, I am bound to do so; and, on the same principle, so long as it is my sincere persuasion that ligature of the artery is preferable to pressure, for the cure of popliteal aneurism, I shall deem it my duty to pursue this method, though it may not, perhaps, be the best suited for the lowest capacity of surgical skill. Puncture of the bladder and compression of the femoral artery may be useful expedients when circumstances forbid the adoption of better means; and I am far from desiring that either the one or the other should be excluded from the practice of surgery; but it would surely be unreasonable to insist upon these clumsy, painful, and I will add dangerous, methods of treatment being employed upon all occasions, instead of those which, when properly executed, are easy, gentle, and safe. Puncturing the bladder is certainly better than leaving the patient to his fate, or aggravating it by mischievous poking with catheters; and compression of the artery is undoubtedly better than its rude or careless ligature. Let every man act according to his powers; but let no one who feels it necessary to choose inferior means, throw blame upon those who are able to practise a higher exercise of their art." (See p. 569.) The Editor of the *Lancet* has published a garbled extract of this passage so as to give it the appearance of a sneer, while the Dublin gentleman has gone a step farther and distorted my meaning by using words of his own. How far tactics of this kind are creditable to their authors, I leave to be determined by the reader, who, at all events, will not fail to draw the inference that it must be a weak case which resorts to the support of misrepresentation and personal invective.

Part Second.

REVIEWS.

Chemistry and Physics, in relation to Physiology and Pathology. By JUSTUS LIEBIG, M.D., F.R.S., &c. 8vo. pp. 116. London, 1846.

HAVING in September last procured an early copy of a German literary journal,* containing a new paper, by Liebig, "On the Relations which Physiology and Pathology bear to Chemistry and Physics," we made haste to present our readers with a translation of as much of it as we could make room for in two succes-

* *Deutsche Vierteljahrsschrift.* 1846. Heft iii. No. 35.

sive numbers of this journal. Several reasons, however, led us to omit the remainder of this paper—in particular, because besides having been published separately in an English form at the beginning of the winter, a translation had been completed in the "Lancet," before we, with our longer interval of publication could overtake the whole,—and lastly, because we found the author had incorporated the substance of it with the new edition of his "Chemistry of Physiology and Pathology." Yet we think it due to our readers to give some account of the remainder of the paper, which would have been done sooner, but for the pressure of other subjects in the last few numbers. That further account we propose to give in the form of a review, extending, though briefly, to the whole paper.

The portion of the paper which we gave in our numbers for October and November is chiefly directed against what Liebig conceives to be certain errors in the mode of philosophising as regards physical and vital phenomena. With much of what he says we entirely agree, while to the justness of some of his axioms we demur. He has dwelt at some length on the necessity of a certain forwardness of mental development in the men of any age, before external appearances, however exactly observed, can suggest the proper conclusions in the shape of principles or laws of science. To this we subscribe implicitly. But how is this mental development to be attained? Not surely by sitting idle, and refusing either to observe in the manner, or to draw inferences in the degree which the still undeveloped state of the human intelligence is capable of. Or, what is the same thing, it appears that there is no other route by which men can advance to a point of maturity in any department of knowledge, but by modes of inquiry and kinds of conclusion which at first are, to a certain extent, erroneous. In short, the road to truth necessarily lies through error. Yet a great part of the paper before us, subsequent to the axiom just referred to, is employed in holding up to contempt the less exact turns of observation and inference, through which science has toiled to reach the more enlightened views of truth which have now come to prevail. It is far from uninteresting to mark the errors of past times; but every mode of censuring these does not lead to good in a present age. It appears to us that Liebig here speaks of them in a wrong spirit, and points to them with none of that indulgence with which errors, obviously for the most part inevitable, should be treated,—errors without the commission of which the imperfect science of early times would have stood still. Is it so certain that the Liebig of the next age, with their clearer lights, will not have an equal or better title to hold up to scorn what will appear to them, however great in our eyes, the zig-zag course and short-coming progress of the Giessen chemist in common with that of the other cultivators of the less advanced sciences in our times?

It is too true that men of science have found it very difficult to lay aside the idea of some machinery being uniformly interposed, in physical phenomena, between cause and effect; but it is also true that even after the persuasion has become general that no such machinery is discoverable, the old language is still often retained when no idea of that kind is meant to be expressed. This we say is most commonly at present merely an error of expression, if error it can be called. For example, when Liebig criticises Mùlder for speaking of certain forces existing in sulphur, selenium, chromium, and manganese, it is but a verbal difference which exists between them, which difference interferes in no respect with the real sense any more than the phrase "that the sun rises or sets," implies any ignorance of the real astronomical relation of the sun to the earth.

Again, we agree with Liebig as to the vagueness of many terms used in the science of physiology, whether in the healthy or diseased state, such as excitants, excitability, irritants, irritability, reaction, exhaustion, &c. All such terms are indeed vague—but in a progressive science—not yet far advanced—such terms are indispensable, and very far from being useless, provided they are not employed in an undue degree, or to be retained beyond the term during which, for want of more exact symbols, they are essentially requisite. Excitants are the agents which act on excitability, and excitability is the property, exclusively known in organic textures, of being acted on otherwise than inorganic matter is affected by these same agents—under the law that the effect at length fails though the agent be still equally applied as before. Here Liebig, to be sure, affirms, not on proof but on a rational conjecture, that the failure of effect does not take place till a certain chemical or other purely physical change has been wrought on the tissue. This is a mere truism, to which hardly any one could have refused assent at any period in the progress of physiology. It is of no value whatever to the physiologist at present, and the convenience of physiological science requires the old terms to be retained, till it be shown not only that the change is chemical, but what is the precise nature of the change, and what is the equivalent expression for it. In the meantime, terms such as excitants and excitability, reaction and exhaustion, though their whole import be not yet known, nevertheless represent certain distinct though partial conceptions in relation to the course of the phenomena in which they are concerned, and thus may be likened to unknown quantities in mathematical science, the conditions necessary to the reduction of which have been in part already ascertained. And so far are such terms from being useless that, without the introduction of them and the efforts to render them more exact by successive circumscriptions, it would be impossible for the organic chemist to form even an idea of what physiological science expects of him for the future, in accordance with the boast which he is made to hold forth. In his over anxiety to find a flaw in Henle's views, our author has for-

gotten that the language made use of by the former is still the ordinary language of physiology, and that it must continue to be so till some decided step in advance shall have been made.

But we must proceed to give a brief notice of the portion of the paper which we have not yet published. He enters on a comparison between what is called the parasitic theory of disease and the chemical theory, for the purpose of showing that there is no view more destitute of a scientific basis than that which identifies miasm and contagion with living organisms as parasites, fungi, and infusoria. The illustrations which he here employs are designed to show the power of the influence developed, whenever "a change occurs in the form and property of matter, or whenever combination and decomposition are going on." We give his conclusion on the one hand from the translation before us.

"Here our deduction is fully justified according to the rule of natural inquiry, that in all cases where a process of putrefaction has preceded the first indications of disease, or where disease can be communicated by solid, fluid, or gaseous products, and where no more immediate cause can be adduced, the substances or matter in the act of decomposition must be looked upon as the most probable cause of disease."—P. 54.

He next takes up the evidence in favour of the parasitic theory, regarding it as resting principally on two facts, the propagation of the itch, and the disease termed muscardine in silk-worms, dependent on the presence of a fungus. We can quote no more than the following passage.

"A view of the cause of fermentation and putrefaction, which is thoroughly false in its principles, has hitherto served as the main support of the parasite theory. Its adherents regard putrefaction as a decomposition of organic beings, by infusoria and fungi, and every putrefying body as a sort of rampart of infusoria, or a plantation of fungi; and thus, according to this view, wherever organic bodies pass into putrefaction to any extent, the whole atmosphere must be filled with the germs of the contagion, and become the cause of disease."—P. 62.

The remaining part of the paper, like some other productions of Liebig's pen, does not preserve much lucidness of method; it is composed of additional instances of what he regards as false views of speaking or philosophising particularly on points bearing on chemico-physiology. To a few of these we shall advert with as little attempt at method as this part of the paper itself exhibits.

He says nothing is more common than to ascribe the fall of the mercury in the barometer to storms, and points out that storms are the effects of a difference of temperature, or of some other cause of interrupted equilibrium in the pressure of the atmosphere. Again, a change of pressure affects the height of the barometer. "Thus the barometer and the storm do not stand in any immediate relation to each other; the storm exercises no influence upon the

barometer, and the two are only combined by that mutual dependence upon one cause." Here we cannot but think the illustrious philosopher of Giessen is fairly caught napping. For what is a storm but a violently disturbed equilibrium of the atmosphere? and thence a storm is in fact the cause of the fall in the barometer. If it be still contended for Liebig that a storm is not the disturbed equilibrium itself but the effect of the disturbed equilibrium, then it must be maintained that a storm is not a physical phenomenon but a conception in the mind of man—that a storm is not a terrible wind, but merely a placid affection of human thought. If this be Liebig's meaning, then does he wish to bring back upon us a parallel to the paradoxical nonsense of a former age, that there is no heat in the fire, no cold in ice.

Our author next instances Henle's account of the proximate cause of fever, as an example of an error of the same class as that which ascribes the fall of the barometer to storms. We will only remark on this point that, where Henle says the proximate cause of the symptoms of fever is an alteration of the central organ of the nervous system, he is employing the kind of language recognized in pathology, and which must still be employed till some new step in advance shall be accomplished.

Our author next enters on some reflexions on the course which must be pursued in the investigation of the cause of fever.

"If it be assumed that this alteration is always and unalterably accompanied by febrile symptoms, the knowledge and explanation of the cause of fever must include the recognition of the connexion of the three constantly recurring indications of fever—that is, the subjective feeling of indisposition, the alterations in circulation and respiration, and the changed phenomena of heat, which characterize the febrile condition, as well as the relation of their mutual dependence.

"If we exclude from investigation, as inexplicable phenomena, the subjective indications, the feelings of indisposition, and of heat and cold, it still remains to trace the connexion existing between the alteration of the spinal cord, the accelerated movements of the blood and the respiratory apparatus, and the altered phenomena of heat. Before we can obtain any explanation of this, we must arrive at a conception of motion, and seek the source of a moving force and heat in the animal body. If we would trace the cause of fever according to the physical method, and consider that by the co-operation of many, or let us say of two causes, a certain amount of force is engendered in the heart itself, by which the circulation of the blood is affected; then the motion will be regular or normal, if the number of the beats of the heart be equal in every minute, and when the force is thus divided over equal periods.

"*Point of View of the Investigation.*—If this same amount of force, in consequence of the disturbed relation of the two causes, which have their seat in the heart, at one time increases and at another diminishes, the pulsations of the heart will be at one time quicker, and at another slower. The force engendered is in this case not proportionate to the term of its consumption. It is clear that, on the supposition of this force being engendered in the heart, the alteration in the spinal cord can exercise no other influence upon the change in the phenomena of motion, or upon the accelerating or retarding of the heart's action, than that, in consequence of its condition, it may oppose, in some manner or other, a smaller resistance to motion at one period than another. The causes

of the effects of motion do not exist in the heart alone ; they are distributed in every part of the organism, in the spinal cord, as well as in every individual muscular fibre.

*“Enquiry into the Connexion of the Spinal Cord with the Effects of Motion.—*We may conjecture that the movement of the heart, as well as that of all other parts of the organism, the motion of the intestines, and the voluntary motions, proceed from the spinal cord, and it is evident that a change in the condition or character of this organ must be followed by a change in all the phenomena of motion. The same must happen when any part of the nerves, standing in connexion with the spinal cord, and with the circulatory apparatus, &c., suffers a change of condition or properties, and this changed activity must exercise a retrograde influence upon the spinal cord and the apparatus of motion. The laws of the propagation or communication of motion, are everywhere the same, whatever causes may have called them forth.

“The cause of motion in a mill, the rotatory motion of the stone, the bolting of the flour, &c., are not occasioned by the wheel, for that is a portion of the mill itself. It is quite certain that an irregularity in the working of the mill may be occasioned by the removal of a few of the wings of the wheel, by which the pressure of the water on these parts ceases ; it may also, however, be occasioned by the breaking off of the cogs of one of the other wheels of the mill, when an irregularity of motion will be perceived not only in this wheel, but in every other part of the wheel.

*“Regular and Irregular Motions.—*If now the organism engender a certain amount of force in a given time, the motions will be regular if the force proceed from the spinal cord ; irregular if one apparatus have more force than another. If subsequently the motions of the blood and respiration be accelerated, the consequence will be weakness in the limbs, or a disturbance of the digestive functions. The extra force which the heart receives in the acceleration of its action, cannot be applied to the other apparatus of motion.

“After establishing the connexion between the spinal cord and the effects of motion, the relations of the latter to the phenomena of animal heat must next be discussed.

*“Relation of the Phenomena of Animal Heat to those of Motion.—*Observation shows that the irregularity of the phenomena of motion is accompanied by a change in the phenomena of heat ; in many cases the subjective and objective phenomena of heat rise and fall with the acceleration or retardation of the indications of motion ; in other cases again both do not recur simultaneously in the same relations. But the phenomena of motion become more regular by the equalization of the indications of heat ; and if the former are restored to a normal state, the latter will show a proportionate degree of irregularity. If, now, it can be shown that the effect of motion (speed) does not call forth heat (as, for instance, by friction), it naturally follows that heat and the phenomena of motion stand in no nearer connexion with each other than the storm with the abnormal rise and fall of the mercury in the barometer, and that, consequently, the causes which have influenced the one series of phenomena are simultaneous conditions of the other series. If the amount of evolved heat in a given time stand in a definite relation to the number of blood-corpuscles which have passed through the capillaries in the same time, the source of heat must be sought in certain states of the blood-corpuscles, or of the blood and the capillaries.

*“Relation of the Phenomena of Heat to the Oxygen of the Air.—*Since it is proved, by investigation, that the condition of the blood, by which it may become a source of heat, consists in its power of taking up oxygen, and since the oxygen thus taken up in a given time stands in a definite relation to the number of inspirations within the same period, irregular effects of heat must be dependant upon the respiratory motions, the contractions of the heart, and *one external cause*—and this is, the chemical action of oxygen. As the relation of these three factors to each other is altered, the phenomena of heat must in like manner change ; and when in certain parts of the organism the capacity of

entering into combination with the oxygen increases from any superadded cause, more heat will be evolved in that one part than in others. When, in accordance with this, the motion of the circulation and respiration is accelerated, then will also the amount of oxygen and liberated heat be increased, which is in accordance with the beautiful law established by Vierordt. If the respiratory and circulatory motions are accelerated in unequal relations, the subjective or objective feeling of warmth is changed. When all these relations are examined and obtained, we shall not only be able to explain the individual symptoms of the fever, and, consequently, the disease itself, but we shall then also be enabled to trace all to a final and sole cause (the cause of disease). This is the course of natural enquiry."

We can afford room for no more than one or two passages besides.

"Those philosophers who regard vital processes as effects of inorganic forces, entirely forget that the expression *chemical force* means nothing more than the *quantitative* character of different vital indications, and the qualities dependant upon these quantities. The false view taken of the influence of chemistry in explaining vital phenomena arises from one of two erroneous estimates of the science, either depreciating its effects unjustly, or entertaining too exaggerated an idea of its importance. * * * *

"It must be evident, even to the unlearned, that the difference in the properties of two bodies is either dependant upon a different arrangement of the elements of which they consist, or upon a quantitative variety in their composition. Chemical formulæ are expressions of the different methods of arrangement, the *quantitative* differences which attend the *qualitative*. Chemistry, even at the present day, cannot by the most careful analysis establish with certainty the composition of an organic body, if its quantitative relation cannot be gained from a second, which has already been ascertained without any doubt; without such aid the formulæ for the oil of bitter almonds and fousel oil could not have been obtained, and if the relation of dependence between two bodies cannot be ascertained by direct observation, the chemist is obliged to find it by his analytic art; this he does by separating the body into two or more products, investigating those which he obtains from the action of oxygen, chlorine, alkalies, or acids; and by the aid of these he succeeds finally in obtaining one or more products, the composition of which he is acquainted with, and whose formulæ he consequently knows. To the formulæ for these products, he joins that of the body which he has analysed. The sum of the whole is thus obtained by aid of the knowledge of one, several, or all the parts of which the aggregate consists. * * * *

"It is clear that when the weight of a body, and that of one or two, or all the products resulting therefrom is known, we may determine the number and relation of one, or two, or all its elements,—that is to say, we can obtain their formulæ; and thus the result of the analysis can be verified and corroborated. * * * *

"The time will come, although perhaps the present generation will barely live to see it, when a numerical expression for chemical formulæ shall have been obtained for the measurement of all the normal energies of the organism, and of the deviations in the functions of individual parts by means of the corresponding deviations in the composition of the matter of which these parts consist, or of the products to which they give rise. We shall thus obtain a better means of quantitatively considering the effects which are induced by causes of disease, or by remedial agents, and of more clearly and accurately observing the conditions of vital phenomena. Then, indeed, it will be deemed impossible that there ever was a time, when the share taken by chemistry in the acquirement of this knowledge could be disputed, and when a doubt could be entertained concerning the way and means by which this assistance has been afforded."

Thoughts on the Nature and Treatment of several Severe Diseases of the Human Body. By EDWARD J. SEYMOUR, M.D., F.R.S., late Physician to St George's Hospital, London. Vol. 1st. 8vo, pp. 260. London: 1847.

THIS book belongs to one of the most valuable descriptions of medical works, being a detail of the actual experience of a practical physician of known good sense and exact observation, possessed of abundant opportunities for the exercise of these qualities. This volume consists of observations on diseases of the stomach, on gout, on mental derangement, and on sciatica. We can give but a few specimens of the kind of matter of which it is composed.

His first observations turn on the great severity and alarming effect on the general health of disorder of the stomach, which may yield to treatment of a simple kind. Pain dependent on excess of acid in the stomach, often becomes attended with great irritability of the heart and pulsation in the epigastrium, so that the patient is led to believe that he is suffering from disease of the heart, or aneurism of the aorta. These alarming symptoms are cured by the regular administration of antacid medicines with sedatives, or alkalies with rhubarb and calumba root. His formula is rhubarb, six grains; bicarbonate of soda, fifteen grains; calumba powder, three grains; compound cinnamon powder, two grains; to be taken in a glass of water, before dinner or at bedtime, and continued regularly during at least a fortnight. Pain without heartburn or vomiting, is most likely to be the result of irregular contraction of the stomach, in which case he relies on bismuth with magnesia, in the following formula—trinitrate of bismuth, calcined magnesia, compound tragacanth powder, of each a scruple: rub together, and add water an ounce and a half; syrup half a drachm: this draught to be taken every four hours. He says bismuth is highly useful in all painful spasm arising from disorder in the intestinal canal, and states from his own knowledge that it was used with much effect at Moscow in the spasms of the Asiatic cholera in 1831. Some of our readers may remember that the late Dr Abercrombie had so high an opinion of the efficacy of bismuth in such cases, as to recommend the trial of it in a little tract which he published just before the Asiatic cholera visited this country. When the use of bismuth was first revived on the recommendation of Dr Odier, of Geneva, it was common to join it with tragacanth powder, as in Dr Seymour's formula, with the purpose of sheathing the stomach from its acrimony. This practice has been little followed of late, though when the dose used is so large as twenty grains, it might be safer to retain the tragacanth. He regards the hydrocyanic acid as having a similar power, but less effectual. When the pain of the stomach resists this treatment, he trusts to a grain of opium administered thrice daily; the bowels being in the meantime kept open by injections. In simple pyrosis he employs the compound powder of kino (Ph. Lond.), namely, kino and opium with cinnamon, in doses of five grains a day, the bowels being kept free by aloes, rhubarb, or enemata. A blister over the epigastrium is sometimes useful at first. When under the idea that the liver is diseased "calomel and purgatives are prescribed, such cases become greatly aggravated both as to time and severity." Pyrosis is often, however, the forerunner of an incurable disease, namely the fungoid disease of the stomach, of which Dr S. has published some cases in the *Medico-Chirurgical Transactions of London*, vol. xiv.

He next refers to pain in the region of the stomach from gall-stones, though without proposing any treatment. Under this head he refers to a case from which he infers that "the symptoms and violent pain may be produced with-

out obstruction of the ducts themselves," the gall-stones having been in this case so large as to fill the whole organ, though only four in number, and being thus incapable of passing into the ducts. He then offers some useful observations on simple ulceration of the stomach, and after remarking on the best regimen as respects diet and exercise, under the tendency to pain of the stomach, he proceeds to speak of vomiting.

The first point to be ascertained when constant vomiting occurs in a female is whether she be not pregnant. He refers to a case in which the most urgent vomiting had begun within one month of conception, and when the last child was no more than between two and three months old, so that no suspicion of pregnancy had arisen. In this case a grain of opium three times a day, with enemata, gave relief. At a more advanced period of pregnancy he has seen one or two small blood-lettings cause the vomitings to cease. In constant vomiting, chiefly in females "after much distress, produced suddenly or after a very trivial injury, such cases being purely dependent on the nerves of the stomach, which sympathize with the nervous distress in other parts," a cure is easily made, he says, by an effervescing draught, with from three to eight minims of laudanum given every six hours. The following is his formula:—Carbonate of ammonia a scruple; water an ounce and-a-half; syrup a drachm; fresh lemon juice half an ounce: draught to be taken every four hours. The following draught, according to our author, answers the same purpose:—Sulphate of magnesia a scruple; carbonate of magnesia ten grains; mint-water ten drachms; laudanum three to six minims: this draught to be taken every four hours. The same means, he says, often afford relief for considerable periods of time, even when the vomiting is symptomatic of much more serious disease or injuries. In symptomatic vomiting a blister or mustard poultices often put an end to the morbid sympathy. From half a grain to a grain of opium made into the smallest size, and as fresh as can be procured, is often successful where all has failed. He has seen equal parts of milk and lime-water succeed where everything else had been tried in vain. In hysterical vomiting he gives his testimony to the value of creasote, the dose being one or two minims thrice daily. Among other means of checking vomiting, he mentions the successful use of savoury meat,—the jelly of meat taken in very small quantity regularly thrice a day. Against the vomiting of phthisis he recommends four grains of the extract of conium, to be taken twice or thrice a day, followed by this draught:—Lime-water one ounce; cinnamon-water half-an-ounce; syrup a drachm. Our author affirms that vomiting occurring almost always after cough in phthisis at an early period, marks a severe and rapid form of it; and at a late period that large collections of matter are locked up in the lungs. In the vomiting attending what was formerly termed the iliac passion in a young woman, after the case had become hopeless he succeeded by administering two grains of calomel, made up with a grain of the soft and recent extract of opium; and when the endeavour to vomit returned, by forcing the patient to swallow half a bottle of soda-water in a state of effervescence; "the expansibility of the gas, and the downward impression in swallowing had the desired effect." After three successive doses in this manner, the case which Dr Warren had given up for lost became manageable. Such cases as this, marked by feculent vomiting, he regards as the idiopathic iliac passion, being plainly unconnected either with hernia or intus-susception.

Dr Seymour regards vomiting of a peculiar matter "of a green so dark that it is only to be compared with that which the sea acquires at great depths—a blue as intense nearly as that of indigo; deep green when regarded in one way, blue in the other," as diagnostic of tubercular accretion of the peritoneum—the disease first accurately described by Dr Barron. Dr S. says this disease is generally confounded with mesenteric disease—but that it is much more frequent—in the ratio, according to his experience, of five to one. Dr S. considers this disease as not absolutely incurable, while he considers iodine

to be the remedy on which the chief reliance is to be placed. Mercurials he thinks are injurious.

When referring to vomiting as a symptom of a urinary calculus, our author proposes no treatment, contenting himself with some remarks on the diagnosis.

Referring to the vomiting in Asiatic cholera, he enumerates some of the remedies which were found beneficial. We will only mention a scruple of Epsom salts with five grains of magnesia, and two or three minims of laudanum in a tablespoonful of water, every three or four hours, or oftener, as we have frequently remarked the utility of small doses of Epsom salts in other cases of obstinate vomiting. In the summer cholera of Europe, or in what is now sometimes called cholérine, our author most confidently recommends three grains of calomel with a grain of opium as an almost never-failing means of arresting the disease—more than a second dose being seldom required.

The observations with which our author concludes the first section of his first volume on gastro-enteritic inflammation are very judicious. He awards to Broussais the praise which he deserves as having fixed the attention of the medical profession throughout Europe, on the fact that one form of continued fever is connected with follicular ulceration of the mucous membrane of the intestines, while he regards his attempt to reduce the morbid affections in general of the stomach and bowels to forms of inflammation of their mucous membrane as unsound in the extreme. He denies that chronic gastro-enterite is frequent, at least in this country, and refuses to refer to such a state of the mucous membrane, many of the affections included under it in the French school, while he contends that a different kind of treatment from theirs, namely, mercurial alteratives and saline purgatives, succeed best in the case of such affections as seen in this country.

We have left little room for an abstract of the remainder of the volume. "Our present practice in gout," he says, "consists in keeping the bowels open with warm and aromatic purgatives, in great attention to the digestive organs, particularly the liver, in the regulation of diet, and during the fit the employment of opiates to relieve pain, and of colchicum to diminish severe inflammation, and from its character as a specific."—Page 87.

He approves of the English caution as to bloodletting in gout, and thinks the new French practice of leeching the affected part equivocal. He is a strong advocate for colchicum, and is little inclined to refer ill effects to its action.

We must not attempt at present any account of his views of the treatment of mental derangement; we will only remark that small doses of opium enter frequently into his treatment, and that he questions the utility of that complete seclusion from former friends at present so generally enjoined.

Under the head of sciatica he insists on the symptomatic being distinguished carefully from the idiopathic form, and that the particular cause of the symptomatic disease shall be sought out, and that the treatment shall be decided on accordingly, which, he says, at present is seldom the case. In the idiopathic form, he thinks acupuncture one of the most efficacious remedies. The other remedies are too numerous to be detailed at present. Among others are belladonna, aconite hyocyamus, sulphate of quinine, iodine, turpentine enemata, and above all opium.

We conclude with again recommending this book to the attention of our readers as a work pretending to no science, but as a good every-day practical help to the profession.

Observations on the History and Treatment of Dysentery and its Combinations, with an Examination of their claims to a Contagious Character, and an Inquiry into the Source of Contagion in its Analagous Diseases, Angina, Erysipelas, Hospital Gangrene, and Puerperal Fever. By WM. HARTY, M.D., Physician to the King's Hospital and the Prisons of Dublin, &c. Second Edition. 8vo, pp. 303. Dublin: 1846.

THE first edition of Dr Harty's work was published in 1805. It is, however, so entirely remodelled that the book may be regarded as a new work. It may be described as a compendium of the literature of dysentery. References are made throughout the work to the opinions of nearly a hundred authorities on the subject of dysentery, the titles of the works being given in an index at the end. In this respect we regard Dr Harty's book as a valuable contribution to the history of medical opinion on a disease very liable to vary its character under slight variations of circumstances. And though we yield to none in the firmness of our faith as regards the improvement of medical science under the guidance of modern pathology, we nevertheless maintain, that a thorough acquaintance with the views of diseases prevalent among the most intelligent and trustworthy of our predecessors, is indispensable to the steady future progress of medical truth. We cannot, therefore, do less than recommend Dr Harty's work to the attention of our readers.

Among the points treated of by our author, we may enumerate the following as of peculiar interest:—the affinity between dysentery and rheumatism; the combinations of dysentery with intermittent and remittent forms of fever, and with contagious continued fever; the non-contagiousness of simple dysentery; diseases analagous to dysentery in the source of their contagion. Besides these subjects, the history of the remedies employed in dysentery occupies about one third of the volume.

Outlines of Structural and Physiological Botany. By ARTHUR HENFREY, F.L.S., &c. London. 12mo. 1847.

WE can confidently recommend this little work to botanists and physiologists, as the best and most succinct account yet published on the structure and functions of plants. Eighteen plates, containing several hundred figures, will greatly facilitate the labours of the student.

The Transactions of the Provincial Medical and Surgical Association, instituted 1832. Volume 15. London. 8vo. 1847.

THIS volume contains the following original articles:—1. An Ex-

perimental Inquiry into the Effects of Hydrocyanic Acid, by Mr Nunneley. 2. Observations on the Operation of Ovariectomy, by Mr Southam. 3. Observations on the Pathology of Abscess of the Heart, with a case, by Mr Stallard. 4. A case of Large Secondary Prostatic Calculus removed by Perineal Incision, by Dr H. Barker. 5. An Essay, Literary and Practical, on Inversio Uteri; Part 2, by Dr Crosse. 6. On Pathological Memorials, by Dr Paxton.

Although not numerous, some of the communications are very valuable, and these we shall analyse in our Periscope. The Retrospective Address, by Dr Ranking, is executed with great ability.

Minor Surgery; or, Hints on the Every-day Duties of the Surgeon.

By HENRY H. SMITH, M.D., &c. Second Edition, with numerous additions. Philadelphia. 8vo. 1844.

THIS work, on what is frequently called the minor operations of surgery, will be found extremely useful to every practitioner. Any one of us may be called upon at a moment's notice to perform one or more of these, in order to save the life of a fellow creature; and much will depend on the efficiency and dexterity with which they are performed. Here are detailed how to apply all kinds of dressings, bandages, handkerchiefs, splints, and every kind of fracture apparatus; how to reduce dislocations, and how to bleed, counter-irritate, arrest hemorrhage, treat wounds, employ the catheter, inject, and extract foreign bodies. The whole is illustrated by 227 wood-cuts, which, if not executed in the best style of art, are sufficiently accurate for all practical purposes.

Part Third.

PERISCOPE.

PATHOLOGY AND PRACTICE OF PHYSIC.

CONCRETION IN THE APPENDIX VERMIFORMIS OF AN INFANT. BY PROFESSOR HOLMES OF MONTREAL.

A CHILD nearly two years' old, large and healthy, had been indisposed for a week, without swelling or pain of the abdomen, or any other marked symptom beyond some degree of tenesmus and inclination to remain long at stool. On the eighth day a sudden change took place in the symptoms; the face becoming pale, the skin cold, and the pulse nearly extinct, the abdomen still remaining free from tension or swelling, there being no vomiting or sign of uneasiness on pressure; yet he sank rapidly, without loss of consciousness, and in a few hours he expired, uttering his mother's name. On dissection, the abdomen at first presented nothing unusual; but on raising the small intestines, all the portions in contact with the cæcum were seen to be in a state of intense inflammation, in parts nearly black, from extreme congestion. The appendix vermiformis was in its natural situation, and scarcely changed in colour; but on the left side a small portion was softened and broken down, exhibiting an

aperture, the sides of which were quite diffuent. In the appendix a small concretion, about three-tenths of an inch long and two-tenths broad, was found filling up its calibre. It was of a white colour, as if calcareous, and pretty firm, though crushed without difficulty between the finger and thumb. No feculent matter could be detected as having escaped, and the concretion lay between the perforation and the natural aperture of the appendix. It was afterwards remembered, that in the fortnight previous to being taken ill the child had had several fits of violent crying, for which no cause could be discovered at the time.—*British American Journal of Medical and Physical Science*, March 1847.

The effect of small foreign bodies passing into the appendix vermiformis, in producing fatal inflammation, has often been observed. In the preceding number of the same journal a case is related of extensive peritonitis proving fatal on the third day, which appears to have originated in the presence of small portions of gall-stone in the appendix vermiformis; and the authors, Mr Nelson and Dr Crawford, refer to the cases mentioned by Mr Wardrop, in his edition of Baillie's *Morbid Anatomy*, in one of which a small bean, twenty-four hours after it had been swallowed, by having passed into the appendix, excited a peritonitis fatal in three days; while, in the other, a cherry-stone produced a similar effect. They also refer to four cases cited by Dr Copland in his *Dictionary*.

ON THE ANATOMICAL LESIONS DISCOVERED IN ACUTE AND CHRONIC RHEUMATISM.
By PROFESSOR K. E. HASSE of Zurich.

WITHOUT denying the correctness of the general opinion, according to which inflammation of the serous membranes is the characteristic lesion of rheumatism, there are many cases, the morbid anatomy of which is unknown. In some instances no alteration whatever can be discovered in the affected parts during life, whilst, after death, any minute anatomical changes which may exist in them are overlooked, from the attention being wholly directed to the immediate cause of death. Professor Hasse therefore commenced a close investigation into the morbid alterations of rheumatic parts. In one case of muscular rheumatism, the cellular tissue below the skin, and the diseased muscles themselves, were dotted over with closely aggregated ecchymoses, and delicate vascular ramifications, whilst the cellular tissue around was infiltrated with a somewhat viscous, yellowish, and transparent fluid. In another case somewhat similar appearances were observed; but the ecchymoses had disappeared, the exuded fluid was turbid and greyish, and the immediate fibres pale and moist. Seven other cases related by Hasse belonged to that chronic and deeply seated form of rheumatism in the extremities and joints, the morbid anatomy of which is unknown. The principal results obtained are the following:—On closely examining the cartilages of the affected joints, they were found of a reddish hue. The surface of the articular bony extremities presented scattered red spots of different sizes, and intensity of colour, extending from 2 to 6" deep into the spongy osseous substance. The foramina of the bony substance were also filled to about the same depth with dirty-red soft and friable pulp, very different from their normal fatty contents. A microscopic examination of this matter was made by Professor Kölliker, and found to consist of aggregated cells, of nearly similar size (0·0046 to 0·0056), with turbid contents, and of a globular form, although some appeared to be flattened. Treated with acetic acid, these cells exhibited either a tolerably large nucleus, or two or three smaller ones, each of which contained a nucleolus. These could be observed in some of the cells without adding acetic acid. There were also numerous blood corpuscles, and in some places many capillaries, varying in shape, having sinuous walls and a winding course. There were only a few flat fat cells present, several of which had a particular shape. The whole cell-wall, or a considerable portion of it, was separated from the usually homogeneous

contents, and the free interval thus formed was more or less filled with oily granules. Occasionally a little spot of bright yellow was seen among the dirty-red colour, and in these places the cancelli contained fat cells and blood corpuscles. The reddened portions were dotted with lenticular spots of a pale yellowish colour, which were sharply circumscribed. At these points the osseous texture was diminished to a few fragments, and the foramina were filled with a soft yellowish pulpy substance, consisting only of aggregated elementary granules, such as is seen in chronic inspissated abscesses, and in the remains of decayed tubercular matter. In each case the adjacent non-reddened bony substance contained only fat cells, amongst which were seen here and there ruptured capillary vessels, but in no instance the before-mentioned polynucleated cells. In many cases the cartilage covering the bone was irregularly attenuated, the attenuation being most considerable at the margin of the joint, and although apparently dissolved or rubbed off, it retained its smooth surface. Sometimes the bone was deprived of its cartilaginous covering, and perpendicular or flat foramina were exposed, varying from 2 to 4" in diameter, and from 2 to 8" in depth.

These alterations in the spongy substance of the bone must be the results of inflammation and exudation. In those cases, indeed, where the disease had continued a short time before death, the cancelli were filled with a dirty-red mass, consisting of cells, the majority of which might be considered identical with pus corpuscles. The occurrence of cells with a single nucleus is not peculiar to the disease under consideration, as they are frequently seen in the exudation of other inflammations. The absence of inflammatory globules and granular cells, on the other hand, is remarkable. As to the changes the exudation undergoes, they resemble those occurring in other inflamed parts, in spite of some striking particularities, depending in all probability on the special nature of the diseased tissue. Whilst in other textures it passes in chronic cases into filamentous tissue or epithelial products, in the osseous texture it is transformed into bone, and hence the condensation, osteo-sclerosis, or in other cases expansion of the cells observed in long continued rheumatic ostitis. Condensation of the bony texture is more commonly observed in young individuals, and expansion in old persons. The microscopic characters of the osseous tissue itself undergoes no alteration. The fatty substance in the cancelli, however, appears to be displaced by the exudation; but whether the fat cells are broken down and mixed with it, or are entirely absorbed, is unknown. Whether also the changes occurring on the articular surfaces depend on exudation occurring beneath or upon them is unknown.

On examining the bones of individuals who had been free from rheumatism, Hasse could not detect the changes which have just been described. A somewhat similar appearance may be occasionally observed on the surface of bones in individuals who have laboured under mechanical stagnations of the blood, in consequence of impeded circulation through the heart and lungs; the spots, however, in such cases present little of a stellate character, and, on close examination, may be seen to be composed of congested capillaries. The bones of the fœtus and new born infant also occasionally resemble them, and contain cell formations. But these may be distinguished, first, by their being situated in the medullary tubes; secondly, they almost all possess but one nucleus; thirdly, their contents are neither turbid nor granular; and, lastly, they have frequently a flat and irregular shape.

The author closes his paper with the following remarks:—It is rendered certain that in rheumatism the cellular tissue, as well as the bony substance, may become the seat of inflammatory exudation. It is even probable that, in the great majority of cases, especially the slighter ones, their true morbid anatomy, which was formerly unknown, consists in the alterations of these tissues now described. The changes in the osseous tissue may be easily recognised after many years have passed. Those in the cellular tissue, on the contrary, are determined with more difficulty. 1st, Because it is rare that the

dissection of rheumatic persons takes place at a time favourable for their discovery ; 2d, Because the exudation into the cellular tissue is probably rapidly absorbed ; and, 3d, Because when pus is formed, it is considered as a common abscess, and as having no connexion with rheumatism.—*Zeitschrift für Rationelle Medicin. Band. 5. p. 192-212.*

ON SCLEROMA OF THE CELLULAR TISSUE IN NEW BORN CHILDREN. By DR EMAN MILDNER of Prague.

THIS disease, with which we are but very imperfectly acquainted, has lately been closely investigated by the Vienna school. The principal facts arrived at are embodied in the following memoir :—

Pathological Anatomy.—The chief seat of true and primitive scleroma is in the subcutaneous cellular tissue, the corium, and very rarely in the cellular tissue of the superficial muscular layers. The infiltrated fluid may present various appearances. In one case it is of serous consistence, and more or less yellow ; in a second more consistent—thick, clammy, jelly-like, and of yellow, brownish-yellow or reddish-brown colour ; in a third it is mingled with crur ; and, lastly, it may be purulent or ichorous. When the latter occurs the cellular tissue has altogether given way, and has been converted into a dirty-brown, or greenish creamy mass. The fatty tissue remains normal, or becomes moistened by a yellow or reddish-brown honey-like fluid, and, in rare cases, it constitutes a dense, hard, and granular mass. In addition to these local appearances, a particular condition of the blood is invariably met with, exhibiting either the albuminous dyscrasia of Professor Engel, or the more advanced state of dissolution. In the former case it appears of dark red colour, increased consistence, with soft and pulpy-like clots, and collects in the veins and right heart ; in the latter case its colour is rather dirty-brownish, it is not reddened by exposure to the air, clots very rarely occur, and, when present, are small and of loose consistence. The serous cavities frequently contain clammy, honey-like exudations ; catarrhal affections of the mucous membrane, or croupous inflammation of the mouth and throat were more rarely observed. In addition to these morbid alterations there were observed the following :—1. Inflammation of the umbilical vessels, with purulent or ichorous exudations, occasionally filling the umbilical vein so far as the transverse fossa of the liver, or even to the ramifications of the portal vein, in which cases most intense appearances of secondary pyo-hæmia were to be seen. 2. Peritonitis, subsequent to the just mentioned condition of the umbilical vein, with various exudations both of the pleural and pericardial sacs. The lungs were sometimes congested and œdematous, but more generally presented dark red infarction of the posterior and lower lobes. 3. Extended hemorrhagic exudations between the membranes of the brain ; general congestion of the latter organ, and sometimes capillary apoplexy, at others purulent meningitis, and, lastly, transformation of an entire hemisphere of the cerebrum or cerebellum into a thin, pulp-like, dirty-greyish mass. These lesions in the head of the infant were the results of difficult labour.

Symptoms.—The different anatomical changes above noticed, correspond to two degrees in the symptoms. The *first degree* consists of swelling, increased resistance and hardness, dryness and coldness of the integuments covering the upper or lower extremities ; or genitals, without acceleration of the pulse. The colour of the skin undergoes no change, except when congestion comes on, and then it assumes a red tint, the coldness, dryness, and unusual resistance disappears, and the swelling may readily be dissipated by the application of dry heat. A yellow colour of the skin is only to be observed on the occasional development of jaundice. Symptoms of any internal complication are very rare. The child, in most cases, takes nourishment readily ; and it is only when the swelling extends rapidly over the whole body that death takes

place. The *second degree* of the disease is much more fatal, and is usually met with in precocious or ill-nourished new-born children, whose umbilical cord undergoes rapid putrefaction, diffuses an offensive odour, excoriates the abdominal integuments in contact with it, and produces an umbilical ulcer. In these cases the swelling of the general integuments gradually extends over the thorax, neck, and back, the resistance and coldness are increased, whilst the dryness and distension reach such a degree, that the outer layer of the corium becomes almost transparent and brilliant. The colour of the skin varies according to the different kinds of infiltration formerly noticed; and in some cases the epithelium is raised into vesicles filled with a brown-red fluid. In the meanwhile emaciation proceeds rapidly; the child gets more and more rigid and motionless, insensible to external influences, and scarcely takes the breast. The face becomes leaden-grey and puffed up; the semi-closed eyelids cover the nearly motionless eyeball; the vascular and infiltrated conjunctiva assumes a glassy appearance; the mucous membrane of the lips and mouth becomes dry; the movements of the heart and lungs are hardly perceivable; the abdomen is distended and tympanitic, with its lower half indurated, and there is diarrhoea, with watery, puriform, or bloody discharges.

Pathology.—*Post mortem* investigations yield satisfactory proof—1. That morbid alterations of deep seated organs are not connected with the origin of sclerosis, as there are many cases in which no changes but those in the skin can be discovered. 2. That when such alterations have been found, they, in most cases, are in no way related with the integumentary disease. 3. That their presence, notwithstanding, considerably influences the progress of the case.

Etiology.—The disease attacking many children who have been treated, when in a state of asphyxia, successively by tepid and cold affusions; its greater frequency during cold or humid-cold seasons; its sudden occurrence in many new-born infants, who, after warm bathing, were exposed incautiously to cold; and its presence in children born in the street, and during the first days of life, are facts which indicate the great influence of a change in temperature in producing this disease. Indeed the delicacy of the general integuments, conjoined with the peculiar constitution of the blood in new-born children, are the only circumstances which give to inflammation of the subcutaneous cellular tissue a peculiarity not met with at a more advanced age.

Treatment.—Great care must be taken to prevent the disease, by avoiding as far as possible exposure of the child to any change of temperature. In foot and anus presentations, the parts which first appear should be carefully covered with warm clothes. The employment of cold affusion after tepid baths for the revival of asphyxiated children should be restricted to very rare cases. In the first degree the most successful treatment consists of warm, dry, and aromatic fomentations; friction with flannel sprinkled over with camphor, tepid baths and diaphoretics. In the second degree treatment is seldom beneficial. The author suggests at first cold affusion, and then having dried the parts, to cover them with flannel, and employ the same means as in the first degree.—*Prager Vierteljahrschrift*. 1847. Bd. 2.

REMARKS ON THE SCARLATINA, OBSERVED FROM 1838 TO 1846, IN THE GENERAL HOSPITAL AT PRAGUE. By JACOB KUBIK, M.D.

THE essence of the scarlatinal eruption must be looked for in the stoppage of the capillary circulation, whereas true inflammation of the skin occurs only in those cases which continue for several days without undergoing any change of colour. This is of a deep and equally diffused red, scarcely influenced by pressure of the finger, and sometimes attended by scattered vesicular elevations of the epidermis. The occasional destruction of the skin by gangrene, in cases where sloughing of the mucous membrane of the soft palate occurs, indicates that these effects are induced by a peculiar composition of blood. Catarrhal

affection of the bronchial ramifications are never wanting, and in some cases even the lining membrane of the ligaments of the rima glottidis were seen to constitute the seat of the disease. The well-known tumours of the salivary glands are caused by purulent or ichorous infiltration into the cellular tissue which surrounds them, or unites together the glandular lobules, but never by true inflammation of the glands themselves. As to the urine, it was free from any trace of albumen, in some cases of scarlatinal dropsy; in others, it became albuminous at the stage of convalescence without subsequent dropsy; and lastly, in such instances where the urine was albuminous from the commencement of the disease, no dropsy occurred in the great majority of them. The presence of scanty but bloody urine was also quite independent of dropsy, and when it was treated with heat or acetic acid, copious greyish red flocculi were produced, rendering the fluid turbid. The author is of opinion that when albuminous or bloody urine constitutes only a transient symptom, it is dependent on congestion or hyperemia of the kidneys, but that when constant it is the result of an anomalous constitution of the blood. This view is so far supported by post-mortem investigations, that as is well known, the morbid appearances in the kidneys do not always correspond with the state of the urine observed previous to death. "It cannot be denied," says Dr Kubik, "that exposure to cold is sometimes the cause of scarlatinal dropsy, but that its most frequent cause must be sought for in the exanthematous dyscrasia. The blood in scarlatina like that in measles and small-pox, is possessed of the general properties which may be observed in that fluid after narcotic intoxications, and will give rise to either little fibrinous exudations or to hemorrhagic ones. Copious plastic exudations are not met with in this dyscrasia, nor are purulent formations of frequent occurrence. In scarlatina as well as in the two allied exanthematous affections, we sometimes meet with a hypostatic state of the lungs, hyperemia of the parenchymatous glands and of the brain,—and lastly, softening of the stomach. Another post-mortem appearance is also peculiar to this group of diseases, namely, bloody staining, and rapid putrefaction of the vascular walls. The nervous symptoms which occur are obviously occasioned by the dyscrasic alteration, as the organic changes observed in the brain and its membranes yield but negative results." We close our extract with the following therapeutic note:—The use of digitalis, nitre, acetate and tartrate of potash are indicated by copious, pale, and albuminous urine, with steady acceleration of the pulse. Bloody and scanty urine, on the contrary, with a sensation of burning and aching in the lumbar region render the employment of oily and emollient remedies necessary.—*Prager Vierteljahrschrift. Bd. 2. 1847.*

SINGULAR SUCCESSION OF MALADIES AT LAST FATAL, COMMENCING WITH ACUTE RHEUMATISM. By DR FORGET, Clinical Professor at Strasbourg.

Rheumatic Attack.—The patient in this case, a female, thirty years of age, of strong constitution, and sanguine temperament, was admitted into the Clinique on the 23d of April 1846. During the previous winter she had suffered from occasional pains in the articulations, and five days before she presented herself, she had shiverings, succeeded by heat, and pains in the articulations of the feet, knees, shoulders, and lastly, in the left wrist. When first seen on the fifth day, the face was flushed, the skin hot and moist, the pulse 96 (resisting, developed). The left wrist tumid rose-coloured, painful, the femoro-tibial and the tibio-tarsal articulations equally painful, but neither tumid nor perceptibly red. *Venesection to 10 oz. repeated to the same extent in the evening; nitre in ptisan of triticum repens (Chiendent), enema; Diet.*—In the blood drawn, the clot was voluminous and firm without buff. Notwithstanding the loss of blood, the catamenia appeared the same night. Next day the right wrist became affected; otherwise she remained much the same. *Blood-letting again morning and evening, nine oz. each time. The blood plastic.*

Next day (the seventh of the disease) no amendment; the articulation of the left foot a little red and swollen; pulse 120, less developed. *Twelve leeches to the wrist, and as many to the left foot.* *The nitre and ptisan continued.*

On the eighth day the previous pains were somewhat mitigated, but the right haunch affected; small painful glandular swellings in the right axilla; skin hot; pulse 104, tongue dry, thirst, bowels constipated. *Venesection to nine oz.; in the evening twenty leeches to the right arm-pit; enema of sulphate of soda.* Blood drawn plastic. On the ninth day there was some abatement, the patient had slept; pulse 88; the articulations less swelled, and less painful; mouth dry; bowels inactive. *Venesection to nine oz.;* the clot voluminous and firm. *Solution of gum-milk.* Next day (the tenth) the joints almost entirely relieved; pulse 96, large resistant; skin warm and moist; sudamina on the neck; tongue red and dry. Increased sensibility, and slight crepitation in the right iliac fossa. Next day (the eleventh) the arthritis had undergone complete resolution, there being nothing left but slight pain in the joints. The menstruation, which has continued for six days, has now ceased, having been in no degree deranged by the repeated venesections. Here then we have a general acute articular rheumatism, attacked on the fifth day by blood-lettings, these being carried to six, namely, four within two days, and the remaining two with one day of interval, together with, in all 144 leeches, while resolution took place on the eleventh day, being the sixth of treatment.

Attack of Follicular Enteritis.—On the tenth day signs of follicular enteritis had shown themselves, and on the eleventh day the typhoid character was already manifest; the face sunk, the nostrils pulverulent, tongue coated and dry, abdomen somewhat tender on pressure, without tympanitic state or diarrhoea, pulse 100. *Ptisan of triticum repens with gum; enema of milk with honey: an allowance of soup.* On the two following days symptoms the same, treatment little changed. On the fourteenth day some aggravation of the symptoms, which continued much the same, with the addition of slight excoriations about the sacrum; some dyspnoea and typhoid rale to the twenty-fifth day, when there was a slight improvement; but from the evening before the patient had complained of pain in the right leg, and there was evident swelling of the limb, elastic, and a little tender on pressure. Pulse quick, 120. On searching for the source of the swelling, no turgescence of the veins could be discovered. The flank was somewhat painful, but without swelling or hardness. Suspicion arose of a turgescence of the lymphatic system, or of a deep phlegmon of the iliac fossa compressing the veins of the pelvis. *Emollient cataplasms to the flank, warm acidulated lotions to the limb.* Nevertheless the typhoid state had gradually become ameliorated up to the sixteenth day after its development, under the influence of emollients and calmants.

Attack of Phlegmasia Alba dolens (phlebitis).—On the 27th day the oedema, now of three days standing, became less in the leg, and concentrated itself in the thigh. The swelling remained elastic, painful, without redness, and pitting on pressure. Pulse 110 to 120; weakness, emaciation, dejections occasionally involuntary as had happened fourteen days before. *Emollients—soup.* Three days after (thirtieth day) the prominence of the superficial veins of the thigh and hypogastrium suggested the suspicion of a deep phlebitis. Increase of the sacral excoriations. *Tannate of lead to the sacrum.* On the thirty-second day confirmed convalescence from the typhoid state without diminution of the swelling; fluctuation at the knee. Mercurial inunction over the swelling four times a day. On the thirty-sixth day the left leg began to swell twelve days after the right became affected. *Wine and water; soup; acidulated fomentations of bark over the limbs.* On the forty-first day increasing exhaustion, dejections at times involuntary; both limbs very cedematous; the veins of the thigh and abdomen forming a prominent net-work to the thorax. *Opium added to the treatment.* In the following days much weakness, diarrhoea; moanings—extensive ulceration over the sacrum; excoriations over the trochanters; the oedema sensibly diminished. *Opiate dressings.* On the fiftieth

day the œdema of the legs had become slight: the venous net-work very marked; the marasmus increased, the pelvic ulceration aggravated. The white phlegmasia had become resolved after a duration of twenty-five days by the supplementary plexus of superficial veins. *Syrup of bark: enema of ratanhy with laudanum against the diarrhœa, added to the treatment.*

Period of Exhaustion and Purulent Infection.—The patient lived for fifty days more, exhausted by the diarrhœa and the extension of the ulcerations. The dissection is detailed with much minuteness. In the right lung were numerous small abscesses (metastatic); in the ileum, near the cæcum, were traces of old ulcerated patches; the great intestine showed marks of chronic enteritis. The tibial, popliteal, crural, external and internal iliac veins on both sides, and even the common iliac veins, were obliterated by long fibrinous clots, firm and varying in colour from violet to bright yellow. These clots, old and solid, adhered slightly to the internal walls of the veins, which were sensibly thickened and variously coloured. The internal venæ saphenæ were free and permeable, containing a little liquid blood, up to their insertion into the crural vein; these communicated by large anastomosing veins, with the branches of the epigastric and the integumentary abdominal veins, and these anastomosed with the superficial veins of the chest. In the joints there was nothing remarkable. With the exception, then, of the arthritis, the resolution of which was speedy, there were found in this dissection organic traces of the several affections observed during life; namely, follicular enteritis resolved; phlebitis of the lower extremities, confined to the adhesive period of purulent infection, discovered only in the dead body; and lastly, chronic enteritis of the great intestine the cause of the obstinate diarrhœa.—*L'Union Medicale*, 16 Janvier 1847.

Though we are far from disposed to think that venesection is an unwarrantable or useless remedy in acute rheumatism, we cannot but fear that it was carried too far in the above case. We cannot persuade ourselves that acute rheumatism is a disease adapted for treatment, by venesections, “coup sur coup.” Whatever be the real nature of what is termed metastatic disease, certain it is that all maladies which show a tendency so to terminate, require to be treated with the utmost deliberation, and with a special reference to that tendency. And there are good grounds for believing, when the primary malady is driven quickly from the parts first affected, even when venesection is the remedy which has had that effect, that the tendency to the secondary malady is not subdued. Among these diseases acute rheumatism stands prominent. In the above case not less than seventy or eighty ounces of blood were taken from the patient, within a few days, and the rheumatism which had already gained a considerable force, and extent, thereby quickly subdued. It is not therefore going too far at least to suspect that the typhoid symptoms, and the phlebitis were the result of this treatment, and that under less active early treatment, though the rheumatism would have run a longer course, the subsequent maladies and final exhaustion might have been avoided.

OBSERVATIONS ON THE NATURE AND TREATMENT OF VARIOUS DISEASES. By Dr GRAVES, of Dublin.

Unusual Sequelæ of Scarlatina.—Under this head two cases are related where abscesses in different places formed after scarlatina. The first case is by Dr Bernard, of Dundrum. A boy, aged 5 years, about a week or ten days after the disappearance of the eruption, had a uniform swelling, without discoloration of the integuments, and accompanied with excessive pain behind the right ear. When fluctuation was evident, it was punctured, and an ounce of thin purulent matter escaped. The abscess was connected with the meatus of the ear, from which matter also escaped. Another abscess now formed at the back of the neck, which was also opened. The right elbow joint was next attacked, fluctuation in the joint soon became apparent, and an incision was made into the joint, between the olecranon and external condyle, when two

ounces of purulent matter escaped. Subsequently the left elbow joint was affected in a like manner, and treated in the same way. Many weeks elapsed before these joints were restored to a healthy state, notwithstanding the employment of tonics, and a nourishing diet. In a short time another abscess was formed over the sacrum, which was lanced, discharged purulent matter for a week or ten days, and gradually closed up. He now complained of an acute pain in the right lumbar region, and a tumor the size of a Spanish nut appeared in the corresponding groin. A valvular incision (as recommended by Abernethy), was made into its lower part, and gave exit to not less than a quart of purulent matter. The wound was closed with lint and adhesive plaster, and after a few days more matter was allowed to flow out. This treatment was continued from time to time, until the abscess contracted and ceased to discharge pus. Recovery followed.

The second case was that of a girl, aged seven years, attacked with severe scarlet fever, accompanied by swelling of and exudation of lymph on both tonsils, but especially on the right side. There was external tumefaction on the right side, extending down to the chest, very hard and shining. This became more defined and soft, and was at length opened, giving exit to a large quantity of pus. From this time she improved, the abscess discharging freely, when three days afterwards, on taking a drink, a gush of dark coloured blood filled the abscess, and flowed out from its orifice. In a few seconds she was dead. There was no examination of the body.

Epilepsy.—Dr Blackmore of Bath noticed that epilepsy has been brought on by a sudden depletion of the vascular system. The following case confirms the accuracy of the observation. A clergyman of active habits and slender frame had been liable to occasional attacks of epistaxis from his boyhood until the age of thirty, when a bleeding more copious and obstinate than usual came on in the evening. His brother, a medical practitioner, bled him, *ad deliquium*, when the epistaxis ceased, but violent convulsions of an epileptic character came on. On the following day he was attacked with decided epilepsy, and has continued ever since a frequent sufferer from the disease.

Chorea.—Dr Graves strongly recommends sulphate of zinc in this disease. In several severe cases it has, without the aid of any other medicine, cured the patient speedily and perfectly. It may be given simply dissolved in rose water, in half-grain doses, repeated often in the day. When *tolerance* of the salt on the part of the stomach is obtained, it will be often borne to the amount of ten or fifteen grains in the day; but we must always study its effects, and use the smallest quantity that will ensure a cure.

Dr Graves gives a case of a man who was attacked with chorea, for the first time, at the advanced age of seventy years. The disease was very severe and lasted many months.

Cod Liver Oil in Scrofulous Skin Diseases.—A young clergyman was annoyed by a redness occupying the skin of the upper lip. It might be termed psoriasis labialis, and when much inflamed, secreted an increased quantity of epidermis. As the disease had lasted several years, and had resisted all the remedies which had been tried both by London physicians and Dr Graves, he was advised to visit Aix-la-Chapelle, and use the sulphureous waters. The German physician whom he consulted there considered that the disease depended upon a strumous origin, and directed him not to use the water, but to try a course of cod liver oil. He took two ounces daily, and in two months was completely cured. Since this occurrence Dr Graves has thus cured several local diseases of the skin, which he has suspected to depend on a scrofulous taint, especially obstinate cases of sycosis, impetigo, and psoriasis. In all such patients he has combined with the internal remedy, the insertion of one or more issues at a distance from the part of the skin affected; and in sycosis, he follows Alibert's plan of maintaining an eruption on the arm with tartar emetic.

Chronic Furuncles.—Dr Orpen, of Cove, sought Dr Graves' advice for a furuncular affection which first attacked him five years previously. It occurred

on the hands and wrists, and was attributed to some matter that got on his hands, when dressing a phlegmonous erysipelas of the scalp, attended with profuse suppuration. That attack lasted three or four months. He had another attack a year ago, after attending a bad case of sloughing phagadæna of the penis, scrotum and groin, from primary syphilis, which lasted three months. He had a third attack last summer, and was then suffering from the fourth. The eruption is more a purple hard tubercle than a pustule or boil; in some very bad ones they are preceded by a small vesicle, with a white areola about the size of a sixpence or shilling, in which case there is some deep suppuration afterwards; but they generally suppurate very slowly and very imperfectly. The following prescription recommended by Dr Erichsen was ordered. Liquor of caustic potash one ounce, and half an ounce of bicarbonate of potash, in seven ounces of water. One tablespoonful to be taken twice a day in half a tumbler full of nettle tea, and the dose to be gradually increased until an ounce is taken at a time. Dr Orpen persevered for a considerable time in the use of this remedy, occasionally intermitting it, and was at length completely restored to health. He used a generous but not heating diet.

Pityriasis.—For this disease Dr Graves recommends the local application of tincture of iodine. When any solution, whether of sulphate of copper, nitrate of silver, or the tincture of iodine, is to be applied to the scalp or to the skin, it ought to be done, not with a camel's hair pencil, but with a brush of hog's bristles, such as house-painters use, the brush portion being about the thickness of the middle finger. This renders the application at once more speedy and efficacious.

Cod Liver Oil in Struma.—Dr Graves corroborates the testimony of those (and, amongst the rest, of Dr Bennett) who have extolled the use of this medicine in strumous diseases in general. He has seen it do, what he never saw any other remedy effect, *i. e.* reduce to the natural size amygdalæ that were enlarged from the period of extreme youth. A most remarkable instance was that of a young lady aged about nineteen, whose amygdalæ were as large as small walnuts, and which were treated without effect for two years, both by iodine internally, and nitrate of silver locally. A three months course of cod liver oil left no trace of the disease behind. Under the influence of this oil the enlargement of the cervical glands in young persons of a scrofulous habit frequently disappears, and the tendency to the formation of phthisis and the recurrence of strumous hæmoptysis is occasionally overcome. In persons of a consumptive tendency he considers this a valuable addition to our remedies.

ublin Quarterly Journal of Medical Science, May 1847.

SURGERY.

ON THE ORIGIN OF CARIES IN THE TEETH. By JOHN TOMES, Esq., Surgeon-Dentist to the Middlesex Hospital.

MR TOMES observes, the views hitherto maintained as to the origin of caries of the teeth are reducible to two heads—namely, 1st, that it is a vital action and the result of inflammation; 2d, that it is the result of mere chemical action. Mr T. is of opinion that these views are not incompatible with each other, and both are correct, neither being of itself applicable to the explanation of the effect. Thus, he says, the dentine first loses its vitality, and so is deprived of the powers of resisting chemical action. So long as a tooth preserves its vitality, it resists any corroding action which may arise in the fluids of the mouth. The morbid action on which the loss of vitality depends may arise either out of constitutional or local causes. The vitality of the dentine may be lost, and yet no caries ensue, if the fluids of the mouth remain free from the presence of a chemical solvent. The solvent property of the fluids of the mouth

depends on the presence of acid. The acid quality of the fluids of the mouth is often distinguishable by test-paper. The surface of the dentine beneath the enamel presents innumerable cells and the orifices of tubes, and with these tubes the cells communicate. Through these a fluid readily permeates a dead tooth ; and as a tooth loses its vitality in the living body it loses the power of resisting the permeation of the fluids of the mouth. The surface of the dentine is the first to suffer, and the caries frequently travels over the surface of the dentine beneath the enamel ; and this is easily understood from the chemical agency being first exerted on this surface, through the more resisting substance of the enamel.—*Lecture on the Diseases of the Dental Tissue, London Medical Gazette*, vol. xxxix. p. 309.

STATISTICS OF LIGATURE OF THE EXTERNAL ILIAC ARTERY. By DR G. W. NORRIS, of the Pennsylvania Hospital.

In this memoir Dr Norris gives an elaborate table drawn up from the various works of surgery and the numerous periodicals in which operations on the iliac arteries have been recorded. We propose here merely to state a few of the results. Of 118 cases of ligature of the external iliac included in the table, 85 recovered, 33 died, while 3 of the patients who recovered underwent amputation for gangrene of the limb. Of 113 cases in which the sex is noted, 107 were males and 6 females. Of the 6 females 5 laboured under aneurism, and one had secondary hemorrhage. Of 79 cases in which the affected side is noticed, 44 were on the right and 35 on the left side. Of 99 cases in which the age is noticed, 4 were under 20 years old ; 23 were between 20 and 30 ; 32 were between 30 and 40 ; 25 were between 40 and 50 ; 11 were between 50 and 60 ; 3 were between 60 and 70 ; and one was above 70. Of the 118 cases included in the table, 97 were for the cure of aneurisms ; 18 were on account of wounds or secondary hemorrhages, and 3 for the cure of varicose aneurisms. In 4 of the 97 cases of aneurisms, that disease existed simultaneously in both the ham and the front of the thigh ; and in three of these the operation cured both tumours. Of 78 cases in which the period of the separation of the ligature is noticed, in 44 the ligature came away before the twentieth day ; in 24 between the twentieth and thirtieth ; in 7 between the thirtieth and fortieth ; in 3 beyond the fortieth day. The earliest period at which the ligature came was the tenth day, and the latest was the sixty-second day. In 9 cases pulsation returned in the sac after the application of the ligature. In 14 cases hemorrhage occurred ; of these 7 died and 7 were cured. In 10 cases suppuration of the sac took place without any fatal consequence. Gangrene of the limb occurred in 16 out of the 118 cases, 3 of which were cured after amputation, and 13 died. Of the 118 cases, 33 died as before stated ; namely, 6 from hemorrhage ; 3 from sloughing of the sac ; 13 from mortification of the limb ; one from the bursting of an aneurism of the aorta at its bifurcation, ten weeks and six days after the operation ; 2 from prostration respectively on the third and fifth days ; two from peritonitis ; two of tetanus ; one on the eleventh day, from some affection of the chest—probably diseased heart ; one on the second day of delirium tremens ; one of diffuse inflammation ; and in one the cause is not noted. In two instances the peritoneum was wounded in the operation, but both patients recovered. In one the sac was accidentally wounded after the ligature was applied, the case above referred to in which the patient was cut off by delirium tremens. In one the vena circumflexa ilii was a source of much embarrassment to the operator.—*American Journal of Medical Science*, Jan. 1847.

DISLOCATION OF THE HIP JOINT. By VONDERFOUR.

The following case is reported in the *Repertorium* by Vonderfour. The method of reduction which was employed, is one proposed some time ago by Kluge.

A servant girl, twenty years of age, fell on a slippery floor, and, pitching on the left hip, sustained a dislocation of that joint. The patient was first seen, and the nature of the injury ascertained by the surgeon, three days after the accident. The left limb was four inches shortened, and rotated inwards, with the toes resting on the dorsum of the right foot, the trochanter major was displaced upwards and forwards, lying on a level with the anterior superior iliac spine, and on rotation of the limb, the head of the bone could be indistinctly felt rolling on the dorsum of the ilium.

She was freely bled, nauseating doses of antimony given, and cold applications laid over the injured part. On the following morning reduction was effected in the following manner. The patient was laid on her back on a low table, so that the breach projected over the end of the table, the right foot supported on a stool, and the left held by an assistant. A strong sheet was placed between the legs as a perineal band, and brought round the pelvis, was given to another assistant to produce counter-extension. A second sheet was passed over the lower part of the abdomen and the pelvis, the ends of which were held by two more assistants, so as to keep the patient firmly down on the table. Lastly, another sheet was passed round the upper part of the thigh, by which a fifth assistant was forcibly to draw the upper end of the bone outwards. The surgeon now taking hold of the limb, and bending it as much as possible to a right angle with the body, stooping down, placed the limb over his left shoulder, so that the lower part of the limb hung over his back. Fixing the limb in this position, and forcibly raising himself to the erect position, forcible abduction being at the same time made by the hand placed around the upper part of the thigh, the head of the bone was at once made to resume its place in the acetabulum.

ECTROPION—SUBCUTANEOUS INCISION.

A young man was admitted into the Hotel-Dieu under the care of M. Blandin, with ectropion of the lower eyelid, caused by former abscess and exfoliation of the edge of the orbit. An attempt had been made to remedy the deformity by a *blepharo-plastic* operation, but had failed.

M. Blandin operated a second time, by introducing a tenotomy knife, and dividing freely the adhesions, which bound down the eyelid, passing the knife all around between the superficial parts and the periosteum. A small incision in the external angle of the eyelids was added, to render the eyelid more free. The whole eyelid was then drawn upwards, and fixed in its new position by a compress and strips of adhesive plaster.

It is stated that great improvement was obtained by this proceeding, but that afterwards ectropion still existed to a slight extent.—*Ann. de Thérapeutique*, April 1847.

CASE OF PROSOPALGIA SUBSEQUENT TO INFLAMMATION AND SUPPURATION OF THE LINING MEMBRANE OF THE ANTRUM OF HIGMORE. By WILLECK of Toplitz.

When sixty-six years old the patient was for the first time attacked by violent pain in the left superciliary arch, and less severely in the corresponding eye-ball. This pain affected the patient for two years, commencing every day at nine in the morning, and ceasing at two in the afternoon. The use of sulphate of quinine afforded a transient, but not a complete relief. In the spring of 1844 this recurring pain extended to the right side of the face, on which side the alveolar process appeared to be its chief seat, the pain being at this time burning and lancinating. By the local use of antiphlogistic means the pain was mitigated, but at this time the right nostril became obstructed, and simultaneously there arose unusual lacrymation, increased sensibility to light, and a feeling as if the right superior maxillary bone were about to be torn

asunder. On the supposition that a carious tooth was the cause of these symptoms, the suspected tooth was extracted, though without relief. At last, however, an offensive smell in the right nostril, a nauseous taste whenever the tongue touched the alveolar pit, and a fluctuating tumour on the hard palate near the site of the extracted tooth, suggested the suspicion of suppuration in the antrum of Highmore. The diagnosis was rendered certain by the penetration of a probe through the socket of the tooth into the antrum. Appropriate injections were employed for several months with the effect of rendering the fluid discharged from the nose completely odourless, when the pains altogether ceased.—*Oesterr. Wochenschrift*, 28 Feb. 1847.

MIDWIFERY.

TWO SUCCESSFUL CASES OF OVARIOTOMY.

1. *Successful Removal of an Ovarian Tumour, complicated with Pregnancy.* By H. E. Burd, Esq., Surgeon to the Salop Infirmary.—A. J., aged 25, has been married four years, and had three children. Admitted into the Salop Infirmary February 28th 1846. She stated that she detected a tumour in the belly after her last confinement, which occurred seven months since. The measurement of the abdomen at the time of her admission was thirty-seven inches. The tumour was moveable, and fluctuation was perceptible in it. An elastic bandage to support the swelling was recommended, as well as abstinence from all medical treatment. On September 5th she returned to the Infirmary much increased in bulk, the measurement over the umbilicus being then forty-five inches, and fluctuation had become distinct. Above the navel the swelling was irregular, and apparently solid. She said she had menstruated regularly since her return home, and was satisfied she was not pregnant—a statement which the absence of all local signs of that condition seemed to confirm. It being now determined to remove the tumour by operation, on the 15th of September, the patient was conveniently placed for the purpose, and a small incision was first made through the parietes of the abdomen, which was subsequently extended upwards to within an inch and-a-half of the ensiform cartilage, and downwards to the pubes: no adhesions presented themselves. The largest cyst was then tapped, and more than three gallons of glairy fluid withdrawn; the tumour was then drawn out, and it was found that the uterus was in a gravid state, pregnancy being advanced probably to the third or fourth month. The very thick pedicle required the application of strong twine ligatures in three different compartments, and when the pedicle was divided the cut vessels were separately secured by ligature. The wound was then closed by sutures and adhesive plaster, and an opiate administered when the patient was placed in bed. The tumour was found to consist of a multiplicity of sacs, and weighed 50lbs. On the following day (16th) she had much pain and tenderness in the left iliac region, for which she was bled to four ounces in the afternoon, with marked relief. On the 17th abortion took place without the occurrence of hemorrhage. In the evening of the same day there was much tympanitis, with restlessness and hiccup. For this brandy and water with ammonia, and three grains of opium powder, were given. On the 18th she had rallied, but again sank towards evening, though beef tea, milk, &c., had been allowed through the day. Opium and ammonia were again administered with decided benefit. She was further ordered ox-gall ten grains; opium powder three grains; which prescription was repeated at intervals, when called for, through the remainder of the time that the patient was under treatment. It was some time, however, before she threw off all alarming symptoms; for on the 20th

her features were sharpened, her extremities cold, and she suffered from spasmodic contractions of the diaphragm; and on the following day her abdomen was much distended with flatus and tender. These symptoms however yielded to the exhibition of the opium and ox-gall, together with gentle stimulants, and the employment of fomentations and an injection. After the close of the month, she rapidly improved; and early in November the wound was quite healed. The last report (December 24th), states, that since leaving the hospital she has felt no inconvenience, and was then fully employed in her domestic duties.

The author remarks that he did not consider the operation was justifiable when his patient was first an inmate of the Infirmary, because her general health was undisturbed; and that the fact of her pregnancy being subsequently overlooked, is referable to the absence of all signs of that condition, as well as the recurrence, according to the patient's account, of regular menstruation. An explanation of this apparent return of the catamenial period, was afforded by examination of the aborted placenta, which was found to have been partially separated at one point, with a considerable clot adhering. It was not peritonitis, but the frequent occurrence of collapse which excited alarm; and this was invariably and readily relieved by the administration of opium, ammonia, and brandy, of which the first exercised the most potent and immediate influence in rousing the system.—*Medical Gazette*, April 2, 1847.

2. *Successful Extirpation of an Ovarian Tumour on the Right Side—Birth of Two Children subsequently.* By Dr Woyekowski, of Quingay.—On the 27th of April 1844, Dr W. was called to deliver Madame Replumard. He was informed by the nurse in attendance, that after some pains, a small quantity of fluid had been discharged, and at the same time there protruded from the genitals a tolerably large fleshy tumour. The patient was forty years of age, and had borne three children. The menses had ceased for fifteen months, during which time she had experienced all the symptoms which had been present in previous pregnancies. On examining the tumour mentioned by the nurse, it was ascertained to be the uterus, swollen three times its normal size, and allowing the index finger to pass into the orifice. As it could not be returned easily, the abdomen was examined, and found to be distended with fluid; pressure however produced such tenderness that the form of the internal organs could not be ascertained. Paracentesis was immediately performed, and 35 litres of yellowish, transparent fluid, without odour, removed. Palpation of the abdomen now led to the discovery of a tumour the size of a man's head, round, nodulated, floating in the pelvis above the brim, and quite indolent. The other abdominal organs appeared to be normal. The uterus was now replaced without difficulty, and the patient ordered to remain in bed, and to have low diet. On the following day a consultation was held, and ovariectomy decided on, and performed in the presence of Drs Mourcey, Matersewicz, and Gaunard. The operation was performed in the usual manner by the large incision, in eight minutes. The tumour removed weighed six pounds and a half. The tissue was lardaceous, yellow, and very resistant, and contained internally several purulent collections. The treatment consisted in low diet and cold lemonade for drink. On the following day there was no fever or abdominal pain. On the third day laudable suppuration was established. No untoward symptom supervened, and on the twenty-fifth day the patient could walk about perfectly well, the ligature having separated, and the wound being quite cicatrized.

In four months this woman became pregnant, and at the usual time gave birth to a boy. She was delivered in December 1846 of a second boy. Both children are doing well.—*Journal de Médecine et de Chirurgie Pratiques*, Avril 1847.

EXTRA UTERINE PREGNANCY (ABDOMINAL). By CERISE.

The patient was a woman of thirty-eight years of age, who had borne eight children; she had been a widow for three years, but had remarried. In March

1845, the catamenia were suppressed, and she suffered from pain in the region of the kidneys and groins, for which leeches were applied. In April, the pain returned with greater violence, but the menses did not reappear. In May, also, menstruation was absent, and the patient suffered from severe pain resembling that of a partial peritonitis, but unaccompanied with rigors; the right inguinal region was very tender, but after the lapse of a few days, the paroxysms of pain wore off. In June the pains were very severe, the breasts were painful, and the abdomen extremely tender; there was also fever, bilious vomiting, and a yellow colour of the skin; on vaginal examination, the cervix uteri was found to be situated to the left anteriorly and elevated, but did not feel as if the organ were impregnated. The author suspected an extra uterine pregnancy. Dubois examined the patient *per vaginam et rectum*, and diagnosed a normal pregnancy. Recamier considered her pregnancy as possible, but doubtful. Moreau affirmed that the woman was pregnant, that the pregnancy was normal, and accompanied with inflammation of the ovary. For some time, a swelling of the size of a goose's egg had been observed in the right groin; this increased; the condition of the patient grew worse, the abdomen enlarged, the limbs became œdematous, and syncope frequently occurred. The author heard the pulsations of the foetal heart, and the patient felt powerful movements of the child, but still the vaginal portion of the uterus did not alter its position. A consultation was held; bleeding, baths, &c., were prescribed; peritonitis with a tympanitic state of the abdomen ensued, and frictions with some preparation of morphia were the only means which could alleviate the pains from which she suffered. One morning about eight months after the commencement of her illness, the author was called to her; she had passed a night of excruciating suffering, and although her pains somewhat resembled those of labour there was no dilatation of the os uteri, no change in the situation of the cervix uteri, nor any indication of the commencement of parturition. The author was again called some hours later, and he entered just as the woman was expiring; he immediately performed gastrotomy on the left side, when a male foetus came into sight of the size of a viable child of the eighth month, and afterwards found to weigh three pounds. In the right hypogastric region, there was found a spherical spongy body of about twenty ounces in weight, and apparently the remains of a degenerated ovary; the right Fallopian tube was obliterated. On the left side under the hypochondrium lay a large placenta twenty-four ounces in weight, and under it a free space composed of the adhesions between the different points of the peritoneum, but without any special membrane; there was therefore no sac or cyst of any kind. The uterus was of the normal size, and lay a little above the pubes, there was nothing in its cavity like a decidua; the left ovary was free and small, and the fimbriae of the left Fallopian tube were also free.—*Gazette des Hôpitaux*, No. 30. 1846.

ON THE COMPOSITION OF THE BLOOD IN PUERPERAL FEVER. By M. HERSENT.

There is considerable difficulty in determining what puerperal fever is. One author defines it to be inflammation of the uterine veins, another of the uterine lymphatics, a third party considers it as peritonitis, or metro-peritonitis, and a fourth includes under the term all febrile affections occurring in recently delivered females, when accompanied with abdominal symptoms. Mr H. confines the term puerperal fever to "that variety of the typhoid type in which the whole economy appears a prey to the purulent diathesis, and of which the epidemics that rage among lying-in women offer the most perfect example."

The author divides puerperal fever into three kinds; 1st, the bilious, 2d, the pure inflammatory, and 3d, the typhoid. He has studied the blood in three cases of the first class, eight of the second, and four of the third. Of the first class one was taken ill immediately,—and one twenty-four hours after delivery; and the third, at the commencement of the fourth day. Of the second class, there were taken ill after delivery—four, one day; one, thirty-six

hours; one, three days; one, four days; and one, five days. Of the third class, one was taken ill during labour; one, fifteen hours; one, eighteen hours; and one, twenty hours after delivery.

As regards the fibrine, it must be kept in mind that this component part of the blood constantly increases in quantity in pregnant females. The following table will show the ratio between the quantity of fibrine in the blood of a healthy pregnant female at the ninth month, and that of patients labouring under different forms of puerperal fever:—

	Maximum of fibrine.	Average of fibrine.	
In a healthy pregnant female, at 9th month	.....4·8	.....4·3	Andral and Gavarret.
One case only of the bilious form of fever	.....5·7	.....4·4	Hersent.
One case only of the inflammatory.....	.....6·7	.....4·1	
One case only of the typhoid .....	.....7·1	.....4·3	

From this table it is obvious that in three cases only of the fifteen (that is, in one only of each form), did the quantity of fibrine exceed that laid down by Andral and Gavarret, as the normal quantity in a *pregnant* female,—and it must be recollected that it has been ascertained from experiments on ewes and cows that the quantity of fibrine in the blood continues to increase for some time after delivery. From the observations of M. H., therefore, it appears the exception rather than the rule, that the quantity of fibrine in the blood is increased in puerperal fever, and his researches further contradict the opinion that the blood in puerperal fever cases resembles that of patients labouring under typhoid fever. With regard to the quantity of albumen, the average has been ascertained to be in the normal state, 70; pregnancy, 66; the bilious variety of puerperal fever, 55·1; inflammatory, 35·9; and in typhoid, 42·7.

Although the author was aware that it is a principle generally admitted in hematology that the decrease of the albumen is in the direct ratio of the increase of the fibrine, still he was so surprised at the very great diminution in the quantity of the one element, while the amount of the other underwent comparatively but little change, that he doubted the correctness of his results, and invited new researches. M. H.'s results, however, very nearly correspond with those of M. M. Becquerel and Rodier in 1844. In two cases they found the quantity of albumen to be 58·2, and in one case, published in the "*Gazette Medicale*," (1846, p. 689,) the quantity was only 45·8.

The quantity of water in the blood is general in the inverse ratio of its solid contents, and it is now an admitted fact that the blood of pregnant women contains comparatively more water than that of other females. According to M. M. Becquerel and Rodier, the proportion in the former in 801, and in the latter 791. In the investigations of M. Hersent, the quantity of water contained has been found very variable; the difference between the extreme quantities being so much as 77 parts in 1000. He has found the average quantity to be in the bilious form of puerperal fever, 77·8; inflammation, 800; and typhoid, 830.

Lastly,—With regard to the globules, a somewhat greater variation takes place in this quantity than in that of the water,—the proportion of globules varying from 67·3 to 147; the average quantity of the globules has been found, according to Andral and Gavarret, to be in the healthy pregnant female, 110; according to Becquerel and Rodier, 111·8; bilious puerperal fever, 144·5; inflammatory, 114·0; and in the typhoid, 82·3. From these investigations M. H. draws the curious conclusion, that the severity of puerperal diseases and the rapidity of the termination is in the direct ratio of the decrease of the globules.

The author finishes with the following conclusions:—1st, the appreciable

modifications of the blood in puerperal fever consist in a considerable increase in the quantity of water in a very remarkable diminution in the quantity of the globules, and a great decrease in the amount of the albumen.—2d. The severity of the disease is in the direct ratio of the intensity of these modifications.—3d. The blood generally preserves its normal proportion of fibrine, and therefore it is not diffuent, as is generally supposed.—4th. In a few cases this diffuence is met with in consequence of the very great decrease in the quantity of fibrine, but it cannot be considered as a constant alteration.—5. This vitiation of the blood probably exists before the development of the disease, but it cannot be regarded as the cause of the affection: still its existence much increases the danger of the malady.—*Gazette Médicale de Paris*, Decembre 1846.

FORENSIC MEDICINE.

DEVELOPMENT OF BONE IN THE FALX IN A CASE OF ALLEGED HOMICIDE.

CHARLES FORREST, a weaver of thirty, declared to have been in good health, though not of vigorous frame, was gossiping in a neighbour's house at the New Year; a dram being from time to time sent round; when about three o'clock in the morning a violent knocking was heard at the next house. Forrest and others of the party ran out, and he and his neighbour's daughter pursued a man who was seen running away. Coming up with the stranger, Forrest puts his hand on his shoulder, insisting on his going into the next house, that he might see who he is. The man resists, and seizing Forrest by the neckcloth—throws him against a pile of straw; on which the girl alarmed, runs back, calling out to her father, who was following, to come quickly, for the man was choking Forrest. Her father, on running up, found the man above Forrest, and still holding him by the neckcloth. He tried to take the man off Forrest without success, and then the man and Forrest fell on the ground together. When at last the father and daughter had succeeded in forcing the man off Forrest, he got up, or was helped up, and walked back to the house where they had been. He did not speak, or cry all the while, till he got up, and said that he could not—expressing his gratitude to the girl for bringing her father, without whose help he thought it would have been all over with him. On getting back to the house, his appearance was observed to be much altered, he began to moan and made repeated ineffectual attempts to vomit, declaring himself to be very ill, and his fear that he would never get over it. In this state he sat on a chair by the fire-side till seven o'clock in the morning, when he lay down without undressing. He lay quiet till mid-day, when on a message from his own house, he got up, and walked home unassisted. He undressed and went to bed. His mother was much shocked with the change in his appearance, but not having heard of what had occurred in the night, did not take alarm immediately. After going to bed he made attempts to vomit. About four o'clock in the afternoon he groaned heavily; and when spoken to, did not answer, and soon after his mother called in his fellow-workman who could not make him speak in answer to questions. About ten o'clock of the same evening, Dr Selkirk of Carlisle, saw him; he was then comatose and quite insensible; some blood was drawn with no effect. He died at two o'clock the next morning, less than twenty-four hours after the violence done to him.

From the post-mortem examination it appeared that there were no marks of violence externally; the lungs were gorged with blood, giving out freely when cut, a frothy sanguineous fluid. There were some crude tubercles in the upper part of the right lung, and the trachea, from the mouth to the bifurcation, was filled with a frothy sanguineous serosity. The brain was congested, otherwise healthy. Beneath the dura-mater, there was an extravasation of blood on the surface of both hemispheres; that on the right hemisphere amounted to an ounce, that on the left was more diffused and somewhat smaller in quantity.

Between the hemispheres there were found three pieces of bone, two very small, the third about half an inch long. The heart was empty. There was no distinct alcoholic odour in the stomach.

Thomas Gibson, the person who threw down Forrest, was tried at the last Glasgow circuit, for culpable homicide, when the facts above stated were brought out very distinctly by the witnesses. An attempt was made to show that Forrest did not go straight home from the house where he had passed the night, so as to have it inferred that he had got drink in the interval; but the evidence on this head was far from satisfactory. Drs Selkirk and Gray of Carlisle, spoke to the appearances found after death. Dr Seller of Edinburgh, who had been present during the previous part of the trial, stated his belief, that death had been produced by the effusion of blood on the surface of the brain, and that this effusion had been the result of the violence done to Forrest by Gibson, as described by the witnesses—and further, that there was no reason to think that the bone found between the hemispheres had given origin to the effusion of blood independently of violence, though its presence diminished Forrest's chance of a long life. Dr Douglas MacLagan of Edinburgh, who had been present also, till Dr Seller was put into the witnesses box, gave evidence to very much the same effect. Dr King of Glasgow, who had been present also till the two previous witnesses were examined, ascribed Forrest's death to apoplexy, stating, that he should not have anticipated a fatal result from the violence offered, had the membranes of the brain been entirely healthy, though, looking to the medical report, there was nothing to indicate that Forrest would have died at this time but for that violence. The jury found the prisoner guilty of culpable homicide, recommending him to the leniency of the court, on account of the peculiar circumstances of the case. Gibson was sentenced to imprisonment for eighteen months.

There can be no doubt, we think, that the finding of the jury was right in this case, as respects the verdict as well as the recommendation to the leniency of the court. The train of circumstances is complete between the application of the violence and the fatal event. To affirm that there was here the rare case of an apoplexy of the convolutions independently of the violence, would have been a very violent supposition—hardly less so than to say, that a man whose head was seen to be struck off by a cannon ball on a field of battle might have been already dead of sudden apoplexy, and on the point of falling when the ball struck him. Such suppositions are too refined to be received in the ordinary conduct of human affairs. Gibson was the cause of Forrest's death, but it was probably as much his misfortune as his fault, since Forrest was a fragile person; and he, a very robust and muscular young man, accustomed to pursue out-of-door employment.

The case, though clear enough as it actually stands, might have been under other circumstances one of great difficulty, and plainly suggests many important points for considerations in judicial medicine.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXVI.

EIGHTH MEETING—*April 7th*, 1847.—SIR W. NEWBIGGING, V. P., in the Chair.

ON SUBLUXATION OF THE HUMERUS FORWARDS AND INWARDS. By C. H. HALLETT, Esquire.—This communication will be published in our next number.

A CASE OF IMPERFECT VISION ARISING FROM IRREGULAR REFRACTION, NIGHT BLINDNESS AND MYOPIA. By DR ROBERT HAMILTON.—This communication is published in our present number.

REPORT OF THE INSTRUMENTAL DELIVERIES IN THE ST JOHN STREET MATERNITY HOSPITAL. By PROFESSOR SIMPSON.—The deliveries in two years amounted to 1400. One out of every twenty-one mothers died. The forceps were used three times—the crotchet once.

MEETING NINTH—*April 21st. 1847.*—SIR W. NEWBIGGING, V. P., in the Chair.

ON SCURVY. By PROFESSOR CHRISTISON.—PART I.—ACCOUNT OF AN EPIDEMIC SCURVY WHICH APPEARED IN THE GENERAL PRISON AT PERTH IN 1846.—This communication is published in our present number.

CASE OF MALIGNANT TUMOUR INVOLVING THE CRANIAL BONES. By JAMES SPENCE, Esq.—The patient, aged thirty-two, first applied for medical advice on the 15th of December 1846, to Dr Menzies, on account of a tumour situated on the right side of his head. When he first noticed it, about three months previously, it was not larger than a pea, but it had now attained the size of a small orange. When Mr Spence saw the patient along with Dr Menzies on the 17th Dec., the tumour had increased considerably; and occupied a large portion of the upper and back part of the parietal bone and upper part of the occipital bones on the right side. Its external appearance was rounded and regular, owing to the dense covering of the scalp, but on manipulation it was found to be nodulated, soft and elastic at different points. Its base was broad and undefined, and firmly attached to the skull. The patient stated that he had headache and vertigo at the time he first noticed the swelling, and still had these symptoms occasionally after stooping for any length of time. But his principal complaint was a severe pain in the right orbit and eyeball, and a peculiar difficulty which he felt in passing persons or objects placed on his left. For example, in passing persons in the street, who were on his left side, he invariably came in contact with them, whilst he imagined he was passing, or had passed them. The same thing took place in going out at a doorway; he always came against the left door post, unless he used his hand to ascertain his position. He felt no pain or uneasiness on pressure being made on the tumour, nor had such pressure any effect on the pupils, which were perfectly sensible to the stimulus of light; and he stated that he could not say that he felt any difference between his eyes as to the power of distinguishing the forms of objects. He was not emaciated, nor was his pulse quick, his appetite was as good as usual, and he felt no loss of strength, either generally or locally, but was restless, and “could not settle,” as he expressed it.

Palliative measures were had recourse to for the purpose of alleviating the pain in the orbit, and headaches, which soon became more intense and frequent, seemed relieved by the remedies used; but on the 27th December, at 9 p.m. he was suddenly seized with convulsions, which succeeded each other rapidly; and he died at five a.m. on the 28th, in the 23d convulsive fit.

Post-mortem examination.—The head was examined in the presence of Drs Menzies and Gray, and Mr Walker. The surface of the tumour was closely invested by the aponeuroses and some of the muscular fibres of the occipito-frontalis, and temporal muscles. On this covering being carefully removed, the external surface was seen to be lobulated, and varying in consistence at different parts, but generally soft and elastic. The tumour was found to extend from a point $2\frac{1}{4}$ inches above the right ear upwards, 2 backwards, as far as the sagittal suture which it even slightly overlapped; it occupied nearly the posterior half of the right parietal bone, and superior and right portion of the occipital together with the part of the lamdoidal suture between these bones. Its extreme length measured $5\frac{1}{2}$ inches; breadth posteriorly $5\frac{1}{4}$; and anteriorly 4 inches. Internally it was limited towards the mesial line by the falx cerebri, which was much thickened. The dura-mater to the right of the falx was completely destroyed by ulceration, the tumour having passed through it. Its cerebral aspect pressed upon the posterior and lateral part of the right hemisphere of the brain, the arachnoid was ulcerated, and the surface of

the hemisphere was much softened, and sloughy in appearance, and greatly flattened by the tumour. A lateral section of the hemisphere was made from the external surface towards the mesial line so as to see the deeper seated parts, principally compressed without interfering with their natural relations. On arriving at the position of the right lateral ventricle, the roof and floor of the cavity were found closely pressed together, and on carefully removing the posterior part of the roof, the upper surface of the right optic thalamus was found much flattened. The effects of the pressure of the tumour were found to be limited entirely to the right side of cerebrum. The brain, cerebellum, and medulla oblongata were then removed from the cranium, and various sections made in different directions, but no other diseased appearances were found.

MEETING TENTH—*May 5th, 1847.*—Dr R. HAMILTON, P., in the Chair.

ON SCURVY. By PROFESSOR CHRISTISON.—PART II.—ACCOUNT OF SCURVY, AS IT HAS LATELY APPEARED IN EDINBURGH, AND OF AN EPIDEMIC OF IT AMONG RAILWAY LABOURERS IN THE SURROUNDING COUNTRY.—This communication will be published in our next number.

Dr Christison stated that he had been informed no scurvy had appeared in the hospitals and prisons of Dublin, which he attributed to the circumstance (mentioned by all the Irishmen in Scotland he had interrogated), that milk was abundant there.

Dr Paterson had seen a medical man from the north of Ireland, and notwithstanding the existence of great destitution and fever, there was no scurvy. Although *Dr Christison* had proved that the disease might arise from causes not previously considered, he (*Dr P.*) did not think that former experience should be set aside. He was of opinion that sufficient stress had not been laid upon the absence of potatoes in the production of the epidemic. On several occasions the effects of a very inadequate diet had been felt, but it was only in this year that there had been an absence of potatoes, and the presence of scurvy. This at least was a very singular coincidence. The cases he had seen in the Infirmary had not been principally railway labourers. Six cases had been very accurately observed—of these two were women, four men. As respects occupation, two were tailors, one a tailor's wife, one a porter, one a railway labourer's wife. Only three of these had been in very poor circumstances. The diet of two had been abundant as to quantity. In two only was the diet insufficient. Two had not had broth and meat for several months. The diet of all had been deficient in milk, potatoes, and green vegetables. Four had lived almost entirely on bread, tea and coffee, even to their dinner. Only one was a slight case, and two were very severe. Two were treated with full diet and milk, a third had beer instead of milk, and three had lime-juice, but one of these had milk also. All improved at nearly an equal rate, but the case which improved most rapidly, was one treated exclusively with lime-juice.

Dr Spittal remarked that if the absence of potatoes was the cause of scurvy, how can its non-appearance in Ireland be explained? He had seen one gentleman who had lately been in Ireland, and he had never heard of it. In all circumstances where a definite article in diet was wanting, its employment constituted the best treatment.

Dr Paterson observed that we knew very little concerning the prevalent disease in Ireland. Scurvy might have been overlooked, as many practitioners, even of great experience, were unacquainted with it. Besides, in Ireland the people were not labouring under the want of any one article of diet, but under general famine; the tendency of which was to produce pestilential disease.

Dr Beilby had just visited the county Tipperary, and had heard that in some places the people had complained of pain and weakness in the lower limbs, which prevented their working, combined with faintness and general exhaustion. He thought there was good ground for making further inquiry into the presence of scurvy in Ireland.

Dr MacLagan considered with *Dr Christison*, that there were other causes, besides improper diet, which operated in causing scurvy. The effects just

mentioned by Dr Beilby may be explained by the destitution of the people, independent of the disease.

Dr Seller stated that Dr Christison's observations tended to shake many received notions in dietetics—but that a difficulty arose from the evident existence of an epidemic tendency to scurvy. The precise influence of this tendency over nutrition, it was impossible to estimate. Scorbatic symptoms had occurred even among the well-fed inhabitants of Edinburgh. He had seen two slight yet distinct cases in well-fed boys—one, where over excess of fresh animal food seemed to be the cause—and another, so far back as last June, where no error of diet was discoverable.

Dr Ransford had seen four cases in one family among the higher classes. He had ordered an increased supply of milk, and the symptoms disappeared.

Dr Robert Paterson asked, if increased moisture had been observed as a cause. This had been noticed at the Milbank Penitentiary, which was situated below the level of the Thames. He had seen several cases among the better classes of society in Leith, in whom nothing peculiar, as to diet, could account for the disease. They had porridge and milk, soup with vegetables, meat and bread. They all lived, however, in moist localities.

Dr Taylor was sent for two years ago, to see a lady said to be affected with lock-jaw. On first seeing her he found her suffering from severe cramps of the jaw, hands, and legs. On examining the gums he found them very spongy, and the teeth loose. The arms and legs were covered with bruise-marks. The diet of this lady had for some time consisted principally of milk, meat once a day, tea in the evening, and no vegetables whatever. He recognised it as a case of scurvy. Fresh oranges were ordered to be taken freely, and the lady speedily recovered.

Dr Christison did not wish to have it supposed that, in his opinion, the want of potatoes might not be the cause, or that other anti-scorbutics besides milk were useless. Dr Beilby's observations tended to show that the absence of the potato had much to do with the cause of scurvy. It contains vegetable albumen, a principle present in all vegetables, more especially succulent ones. He considered the want of potatoes a most important circumstance, both directly, and indirectly by rendering other articles dear. Dr Taylor's case was a most interesting one. Sir E. Parry says, that the Esquimaux have excellent health, except in seasons of plenty. When sea-horses were abundant, and they gorged themselves with meat, scurvy broke out among them with unexampled violence. Moisture is an accessory cause; but he did not think it would account for the epidemic at Perth. The people in the kitchen there were free of the disorder, although the moisture was greater; but there they had better food.

MEETING ELEVENTH,—*May 19th, 1847.* DR R. HAMILTON, P., in the Chair.

CASES OF DEAFNESS ILLUSTRATING THE UTILITY OF THE PRISMATIC SPECULUM AS A MEANS OF DIAGNOSIS, BY DR WARDEN.—This communication will appear in a future number. It was illustrated by coloured drawings of diseased appearances in various stages of progress in the living subject.

CASE OF PUERPERAL CONVULSIONS FOLLOWING DELIVERY, WHERE THE VAPOUR OF SULPHURIC ETHER HAD BEEN INHALED DURING LABOUR. BY DR ALEXANDER WOOD.—The author disclaimed all intention of calling in question the safety of the employment of ether during labour, on the evidence of one single case, where it had been exhibited to many thousand patients without injurious consequences. Believing, as he was bound to do, on the evidence of others, as well as from his own experience, that in chest cases it could be exhibited without injurious consequences, and with beneficial results, he thought, at the same time, that it was a duty to put on record even every seeming exception, in order that by extending the basis of induction, practitioners might be the better able to determine whether any, or what limits should be set to its employment; or whether there was anything in certain particular methods of exhibition, which might influence unfavourably the issue to the patient.

In this patient, labour of her second child commenced about eight a.m. The patient was delivered a little after noon. The ether was inhaled at intervals during the hour preceding delivery. There was reason to suspect both its strength and purity, and the apparatus employed was also defective. Strong and urgent after-pains, equalling in severity the pains of labour, occurred at regular intervals of eight or ten minutes from the birth, accompanied latterly with convulsive twitches of the face and muscles of expression. To relieve these after-pains, solution of mur. of morph. in doses of 15 drops was prescribed. Between ten and eleven at night the first severe convulsion occurred, commencing with spasmodic contraction of the uterus, next showing itself in the muscles of expression, passing down at once the chest and limbs. The teeth were firmly clenched, and the viscid saliva squirted through them with a hissing sound. The fits recurred at first with alarming frequency and severity. The patient was bled to $\frac{3}{4}$ xi., after which both the frequency and severity of the fits were diminished—gr. v. of calomel and gtt. ii. of croton oil were placed on the tongue. In about four hours, as this had failed to operate, an enema, consisting of turpentine, assafoetida, and gruel was thrown up, but was retained. At nine next morning the fits were found to be much less frequent, but the bowels were still unmoved. The following powder was exhibited:—B. hydrarg. submur. gr. iii.; pulv. rhei. gr. x.; pulv. scam. gr. vi. At twelve noon, as these medicines had failed to operate, an injection of salts and senna was prescribed, which had the effect of bringing away large quantities of lumpy offensive scybala. The fits gradually declined both in frequency and severity, and before midnight, had ceased entirely. The patient, although perfectly conscious during the intervals between the fits, was drowsy, and could be roused with difficulty. The pulse ranged between 48 and 60. The urine was not coagulable. The blood drawn coagulated freely, and exhaled a strong ethereal odour.

Dr Wood concluded by suggesting three topics for discussion.

1st. *Was the Inhalation of Ether the cause of the Convulsions?*—On this point Dr W. carefully abstained from offering any opinion. At the same time he remarked that if the opinion entertained by many who had written on the effects of ether inhalation was true, viz., that it produced congestion of the cerebral vessels, then all the most esteemed authors on obstetric medicine concurred in holding that congestion of the cerebral vessels was a frequent proximate cause of convulsions. Passages in support of this were quoted from the writings of Duncan, Merriman, Delewyre, Ingleby, Churchill, Davis, Ramsbotham, Velpeau.

The author farther stated that, although as yet no cases of convulsions arising directly from ether inhalation had been published, yet it was very generally reported that in the hands both of surgeons and physicians, fits very much allied in character to epilepsy had been produced.

On the other hand, it must be admitted that many thousand persons had inhaled the vapour of ether without any injurious effects.

2d. *Was there anything in the particular way in which the Ether had been administered in this case likely to cause any additional risk?*—On this point, the author stated that his experience led him entirely to concur with Professor Simpson that the more rapidly and effectually the patient was placed under the operation of the specific effect of the ether the less likely was it to prove injurious. In this particular case these conditions had not been fulfilled.

3d. *Ought the case to have been treated on the ordinary principles adopted in cases of Idiopathic Puerperal Convulsions, or ought the circumstance of the previous Inhalation of Ether to have modified the treatment?*

Dr Macaulay asked at what period after the uterus was emptied did the convulsions come on, and how much morphia had been given?

Dr Wood replied that strong convulsions came on twelve hours after delivery, but that she had considerable twitchings some time previously, and may have had slight convulsions. The patient was ordered fifteen drops of morphia every hour, and may have taken about a drachm altogether. *Dr Wood* stated in reply to a query from *Dr Simpson*, that the blood drawn presented a firm coagulum.

Dr Simpson considered that the treatment employed in this case had been prompt and good, but he had heard nothing to convince him that the convulsions depended on the inhalation of ether—we must take care not to confound coincidence and sequence. He had never heard of a case where convulsions had come on twelve hours after the inhalation of ether. Convulsions and spasms had been observed by some operators during inhalation, but were rare after it. Ether had never been given in thousands of cases, and yet, so far as he was aware, this had not occurred. On the other hand, twitchings, spasms and convulsions were very common after delivery, and were more frequent in some seasons of the year than at others. Now, it so happened, that within the last few months he had seen six very severe cases of convulsions, and that these were unusually common at present had been also remarked by other practitioners. He did not think that the laudanum could have produced the convulsions in this case, but it was very probable that the constipation might have acted as a cause, for as soon as the bowels were relieved they entirely ceased. The blood also firmly coagulated, where (as in cases of poisoning by ether) it had been shown to be rendered uncoagulable and unusually fluid. From all these circumstances he did not think that ether had much to do with the convulsions in the case which had been related.

In cases where convulsions depended upon prolonged and violent muscular efforts, he thought ether would be useful by diminishing or preventing these. He had certainly been afraid of its producing hemorrhage, but experience had not justified his fears. In one case, indeed, there had been severe flooding. It was that of a lady who had previously insisted on having the ether when confined. It happened, however, that the labour was so rapid that he had not time to reach the house before the child was born, and consequently no ether had been given. Had inhalation been practised, the hemorrhage would doubtless have been ascribed to it. He had also seen a case of phlebitis, following delivery, but fortunately the ether here also was not given. *Dr Tyler Smith* had endeavoured to prove from physiological considerations, that ether must be injurious, that the pains would cease, and that the action of the glottis would be impeded, but facts had shown the fallacy of such arguments.

Dr Wood had been cautious in not expressing a decided opinion as to the convulsions having depended upon the ether. He had, however, endeavoured to show that, according to the best authorities, this symptom was owing to cerebral congestion, and as we knew that this state was induced by the ether, he did not believe it to be improbable that inhalation might thus occasion it. The twitchings so frequently observed in women after delivery, were very different from those seen in his case. The non-fluidity of the blood might have been owing to the imperfect etherization which had been induced.

Dr Bennett regretted that *Dr Duncan* had left the room, because he had mentioned to him a case of pneumonia coming on after ether inhalation. The following particulars, however, had been communicated to him by *Dr Duncan*. A gentleman had been confined for a fortnight with inflamed glands in the groin, which suppurated. He was anxious to have the ether before they were opened, which was given, and produced its full effect in three minutes. The ether employed was of the greatest purity, and had been manufactured for the purpose of inhalation. *Dr Simpson's* instrument was used. The patient afterwards stated that he had felt the abscess opened, although there are some grounds for doubting the accuracy of the statement. He experienced the most pleasant sensations, and described himself as being in elysium for some time even after consciousness had returned. In a few hours great mental depression

supervened. After ten hours there was a distinct rigor, followed by high fever, with mental hallucinations. Next day all the symptoms and signs of pneumonia were made manifest, and there was subsequently dullness on percussion, crepitating rale on the right side inferiorly, slight cough, with rusty coloured sputa. He recovered under the usual remedies. This gentleman had been in bed for a fortnight; he lived in a warm room. There had been no exposure to cold, or indeed any other appreciable cause, except the inhalation of ether.

Dr Keiler mentioned, that at the Lock Hospital he had seen the opening of bubos, during the inhalation of ether, followed in females by hysterical and convulsive attacks. One gentleman who had been exposed to the fumes of chlorine gas in such a manner as to produce very unpleasant symptoms, was quickly restored on taking the ether.

DUBLIN OBSTETRICAL SOCIETY.

February 27th, 1847.

NOTES ON PARISIAN OBSTETRIC PRACTICE, by Dr SMITH TYLER, Lecturer on Midwifery, Dublin.

On Deep Cauterization of the Cervix Uteri.—At the opening meeting of this season, a valuable paper was communicated to you by Dr Montgomery, on affections of the cervix uteri, and upon the treatment of superficial ulceration of it by means of caustics; but, as on that occasion no allusion was made to the subject of *deep cauterization*, I beg to offer the following observations on this point, for the purpose of eliciting the opinions of members of the society, who may have had opportunities of trying the practice. Two modes have been proposed of *cauterizing deeply* the cervix uteri—the first by the direct application of the *red hot iron*, the second by means of a powerful caustic paste, composed of equal parts of quick lime and of potassa fusca.

The application of the actual cautery for the treatment of uterine disease, appears to have been first practised by Celsus, who recommended it for the cure of ulcers on the prolapsed uterus; but although proposed in modern times, by Baron Larrey, for treatment of cancer of the cervix, the application of the actual cautery to the uterus had almost fallen into disuse, unless in very rare cases, until of late brought prominently before the notice of the profession, by M. Jobert de Lamballe, of St Louis, one of the most skilful and enterprising of the Parisian surgeons, who, after most extensive experience in its use, has proved that the red hot iron is the least painful, and by far the most effectual means of treating obstinate, or even what were considered incurable affections of this organ. The use of the actual cautery at first met with powerful opposition from his professional brethren, and even yet is not generally adopted for the affections that he recommends it for either in France or in this country; but I feel convinced, from the opportunities I had when recently in Paris, of observing the results of his practice, that medical science is deeply indebted to M. Jobert, for his bold and persevering efforts in carrying out his views; and I expect, at no distant period after ignorant prejudice has been overcome, to see the actual cautery used extensively in the successful treatment of uterine affections, hitherto looked upon by many as incurable, and for which palliative remedies, or a dangerous operation, were our only resources.

M. Jobert recommends the application of the actual cautery in all obstinate cases of engorgement, or hypertrophy of the cervix, especially when accompanied with induration and deep ulcerations, that have resisted all other means of cure; he has also applied it, with marked benefit, to cancerous and other malignant growths, arising from the same situation; by means of it, checking

the profuse hemorrhages which had hitherto been wearing down the patient, and also destroying by its agency the diseased growths, so effectually as to give hopes, if applied sufficiently early, that the entire of such diseased structures might be permanently and safely eradicated.

Like many received remedies, the use of the actual cautery in the treatment of uterine disease may be much abused. In the hands of unskilful operators, serious damage might be done to the adjacent parts; however, this can scarcely happen with ordinary precautions, and caustics are liable to the same objections. That M. Jobert uses it much too generally for the treatment of affections, that might be quite as well cured by less formidable remedies, there is no doubt. At the same time I feel assured, that the benefits obtained from its use, in diseases hitherto resisting all ordinary caustics, will fully bear out the expectations of its present advocates.

M. Jobert employs three kinds of cauteries—1st, a conical-shaped one; 2dly, one with a flattened extremity; and lastly, the round. The surface of the cautery must be perfectly smooth, and when used should be heated to a white heat. It is kept in contact with the cervix one or two seconds, or longer if you wish to destroy the diseased structure. I have seen M. Jobert introduce it a second time for that purpose; he always uses an ivory speculum, as being a non-conductor of heat.

The great advantages which the actual cautery possesses over all other escharotics are, 1st, the rapidity of its action; 2dly, the power of regulating the amount of influence, according to the effect wanted to be produced, 3dly, it appears to have a more decided influence, in melting down an hypertrophied cervix, than any other application except the Vienna paste; and 4thly, as a means of destroying malignant disease.

On Hemorrhage after Delivery.—Whilst going round the wards of the Clinique des Accouchements with M. Cazenave, I was struck one morning with the circumstance, of three or four women, delivered on the previous day, all complaining of passing large clots of blood, accompanied with severe uterine pains; not in a single case, as we occasionally meet with it in this country, particularly after hemorrhage; but on inquiry it appeared that these women had all good confinements unattended by any complications. M. Cazenave told me such complaints were of frequent occurrence there, which at first I felt at a loss to account for, until recollecting that the French don't commonly use a binder after delivery, the fact struck me, as affording a practical proof, of the ill effects resulting from the non-application of that useful appendage.

For in all these cases, the uterus not having been properly kept down in the pelvis, by the pressure of a bandage, had been allowed to enlarge and fill with blood, which now the distended organ was trying to rid itself off. The contraction of the uterus seems to have been totally unattended to, else the accumulations above mentioned could not have occurred. The French only apply the binder in cases of hemorrhage; for the purpose of compressing the uterus externally, whilst many introduce the plug internally, so as between the two to keep up a continued compression on that organ, the latter a practice justly viewed as dangerous in this country, but which I think might be occasionally had recourse to with benefit for the purpose of checking post-partum hemorrhage in cases of placenta prævia. The great danger arising from the use of the plug after delivery, being internal hemorrhage, which I don't believe in ordinary cases where the placenta has been attached to the fundus uteri, we can well guard against, as the source of the flooding is out of the reach of compression from the internal compress; not so where flooding continues after delivery, the placenta having been attached to the cervix uteri, for here we can command the bleeding mouths of the cervic-uterine vessels by our internal compress, whilst a well adjusted pad and bandage over the fundus, lessens the risk of this organ expanding from external distension.

Another favourite means at present practised extensively in France, with the view of effectually stopping the further escape of any blood, after the hemorrhage has resisted all other treatment, consists in the compression of the aorta, through the abdominal parietes, an operation described by some, not so partial to it, as one attended with severe pain and spasms, and not at all satisfactory in its results, but which M. Chailly, a late and approved midwifery authority calls "*the most precious discovery with which the obstetric art has been enriched.*"

Compression of the abdominal aorta, first introduced by Saxtorph, is spoken of also in the highest terms, and recommended as a sheet anchor in cases of the most desperate hemorrhages, by M. Trehan, Siebold, Leichelberg, Ulsamer, &c., no mean authorities; therefore the effects of the operation deserve the closest examination on our part, before we definitely form an opinion of its merits. The great nicety in applying the compression, is to do so on the aorta alone, without at the same time obliterating the course of the great venous trunk, the difficulty of avoiding which is urged as an insuperable objection against the operation; and certainly if such was the fact, that the aorta could not be obliterated without at the same time compressing this large vein, more mischief would result than benefit; for the uterine veins, which empty themselves into the main trunk, would now be gorged with blood, and the hemorrhage in place of being arrested, would only be aggravated. Chailly does not insist on the pressure being applied higher up, than just above the bifurcation of the abdominal aorta into the common iliaes; but Negrier says it must be compressed above the origin of the renal arteries, as high up as the umbilicus, so as to command the spermatics in order to be of any use. One of the advantages particularly dwelt on, as obtained by compression of the aorta, is the time gained for the patient to recruit, for according to its advocates, when properly applied, the hemorrhage formerly going on, at once ceases, and does not reappear so long as the pressure is sustained.

Now, Negrier denies that the flow of blood is entirely suspended, and says, in place of gaining we are actually losing precious time, when other more certain means should be resorted to. But more serious objections still, urged by him, are the alarming symptoms produced by the pressure, sufficient to obliterate an artery of such dimensions, exercised in the then exhausted state of the patient; he gives instances of the most excruciating and intolerable pain experienced by the individuals in whose cases he resorted to it; many of them preferring to die rather than submit to an operation attended with such anguish. Frightful spasms were the result in some instances, attended with a sense of suffocation, and followed by fainting; the patient in one case crying out before hand that he was killing her, and beseeching him to let her die in peace.

In proof of the efficacy of this treatment, Chailly states, that his father practised it once with perfect success, and that he was fortunate enough himself to preserve the lives of several women, who certainly would have perished from frightful losses, only for this precious method. In one instance he was obliged to continue the compression for nearly two hours, of which fact M. P. Dubois was a witness.

According to Chailly, "the effect produced by this compression is so manifest, that one observes immediately the flow of blood to cease; and if by a movement of the patient the aorta escapes from the compression, or if the hand fatigued, ceases to compress the artery, the blood recommences instantaneously to flow."

M. Negrier offers as an explanation of the marked difference in the effects of the treatment observed by him, from those remarked by M. Chailly, the following hypothesis—Firstly, that the pressure exerted by the latter on the calibre of the artery, more or less compressed the uterus against the vertebral column, or one of the iliac fossa, or even pushed it into the cavity of the pelvis, and to that pressure he not unreasonably attributes the cessation of the hemorrhage, rather than to the obliteration of the aorta; which, according to him, cannot

be effected at the umbilicus, without such a train of alarming symptoms arising, as to threaten instant death by causing a suspension of the heart's action.

* * We have omitted Dr Tyler's account of Dr Henry Bennet's treatment of affections of the cervix uteri, as we have already more than once brought that treatment under the notice of our readers.

ON ETHERIZATION.

Apparatus.—Mr Tibbs of Cheltenham, states that holding a piece of sponge, impregnated with ether, over the mouth and nostrils, or at a little distance from them is the best and most simple apparatus. The following are his directions which, however, are not very intelligible. "Get a piece of sponge quite clean and free from grit, large enough to cover the mouth and nostrils; immerse it in water about 50 degrees below boiling heat; squeeze it as dry as you can, from the quantity of ether—(?)—(from half an ounce to an ounce at a time will be sufficient) into a tumbler or glass basin: dip your sponge in (in what?) and it is then ready for use. Should the vapour be too powerful for the patient, hold the sponge at a little distance from the mouth, gradually advancing it as they can bear it. I have used it in thirteen cases since Monday, and in one of them to a child, not seven years old, with complete success. I feel perfectly satisfied from its simplicity and many advantages, it cannot fail to do away with all other kinds of apparatus."—*Med. Gazette*, April 2.

Professor Porta of Pavia employs a soft sheep or pig's bladder, in which is poured about one drachm of ether. The opening is enlarged so that it may be fitted accurately to the mouth, whilst the nostrils are closed. The advantages of this method, according to a lengthened description given of it, are, the small quantity of ether employed, the rapidity of its action, (from 55 to 70 seconds), and freedom from unpleasant consequences. These latter the Professor attributes to the unnecessary quantity of ether inhaled by the different kinds of apparatus invented.—*Ann. de Therapeutique*, Mai.

Applications.—Professor Pirogoff of St Petersburg, employs ether in the form of vapour by the rectum. He at first washes out the inferior portion of the alimentary canal with an ordinary enema, he then introduces an elastic sound into the rectum, and adapts its extremity to a syringe, contained in a capsule of tin filled with hot water. The liquid ether by this method is at once transformed into vapour, in which state it enters the rectum. The advantages of this method are, that the respiratory organs are in no way affected. Etherization is accomplished without the volition of the patient, and acts more promptly. In two or three minutes the air expired smells strongly of the drug. This pneumatic method renders certain operations more easy, especially operations on the face and mouth, and in young children. The quantity of ether employed in this way, is from one to two ounces. Narcotization is usually complete in from three to five minutes, and no unpleasant results have been observed to follow.

M. Flourens has repeated the experiments of M. Dupuy, of injecting ether by the rectum, and obtained no results. He considers the observations to have been erroneous, a statement which does not apply to the method of M. Pirogoff.—*Report of Acad. de Sciences*, May 5th, *L'Union Medicale*.

Dangerous results.—Mr Eastment has published the case of a boy, who had compound fracture of the left thigh. Amputation was performed when he was under the influence of ether. With the conclusion of the operation the difficulties and anxieties of the case commenced, for the patient was in such a state of exhaustion and intoxication, that his life became endangered, and he died three hours subsequently. The state of the brain during this period was peculiarly distressing. There were alternate manifestations of excitement and depression of the sensorial powers; at one time resembling delirium, at another, like approaching syncope, and again, like violent intoxication.—*Med. Gazette*.

Mr Richardson of Brighton, has recorded a case of a servant girl, aged eighteen, who inhaled ether previous to the extraction of a tooth. It was followed by convulsive movements of the limbs, episthotonos, intense pains of the head, spasmodic twitchings of the muscles of the face, dilated pupil, hard and bounding pulse, and stertorous respiration. She was bled to eighteen ounces, when the symptoms gradually subsided.—*Med. Gazette*, April 2.

Mr Worthington gives the case of a man, aged forty-two, in whom, after a few inhalations, the respiration became extremely hurried. At the end of two or three minutes, he started from his seat in a state of furious delirium, vociferating the most awful curses, stamping violently with his feet, and moving his arms about in a wild and frantic manner. This paroxysm lasted four minutes. He then recovered consciousness, and suffered amputation of the hand with calmness and fortitude.—*Prov. Journal*, May 19th.

For an account of Dr Wood's case, in which convulsions came on after delivery, and of Dr Duncan's case of pneumonia, apparently induced by ether, we must refer to the report of the Med. Chirurg. Society, given in the present number. The latter is, perhaps, the most decided proof on record of the occasional stimulating effect of ether on the lungs.

To remove the unpleasant symptoms, and debility, sometimes caused by ether inhalations, Mr Robinson has employed the subsequent inhalation of oxygen, and he says with complete success.—*Med. Gazette*, p. 610.

M. Ducros has found that positive electricity rapidly restores the sensibility of animals who have been completely etherized. Negative electricity, on the other hand, appears to prolong the insensibility.—(*Comptes Rendus*, Feb. 1847.)

Claims to the Discovery.—Mr Horace Wells has established the claim we formerly noticed, by a series of authentic documents, which he has published in a small pamphlet, entitled "A History of the Discovery of the Application of Nitrous Oxide Gas, Ether and other Vapours to surgical operations." These documents not only bear the signatures of different persons who witnessed his experiments, and painless operations in 1844, but the signature and seals of the Mayor of Hartford, and the Secretary of State for the United States, certifying that the signatures are those of respectable practitioners.

THE SCURVY EPIDEMIC.—Scurvy is now very general in Scotland, and has appeared in some parts of England. It is common in the neighbourhood of Carlisle, and among the labourers on the line of the Caledonian Railway for many miles north of that city. Dr Laycock has observed it at York, and Dr Shapter in Devonshire. On the other hand, it is curious that its presence in Ireland has not been much noticed, although we observe in the "Dublin Medical Press," that, according to Dr Cotton, a few cases have been observed at Cork. We have not yet heard of a single chemical analysis of the blood in any of these cases. We trust, however, that some chemical pathologist will not allow the present epidemic to pass without making observations on the composition of the blood in this remarkable disease.

MR WAKLEY'S REGISTRATION BILL.—The new medical bill is well deserving the general support of the profession. It necessitates registration of every practitioner: it secures equality of education and privilege, and suppresses quackery amongst the medical body. We regret to learn that the London Medical Boards are opposing this, as they have done every other legislative measure which has been introduced into Parliament. A committee of enquiry, however, has been granted, and there can be little doubt that all just claims will now be fairly brought before the public, and that all selfish motives will be fully exposed.

NEW REGULATIONS RESPECTING ATTENDANCE ON CLASSES AT THE EDINBURGH UNIVERSITY.—The patrons of the Edinburgh University some time ago determined that in future the student might attend one-third of the prescribed

classes for graduation among the extra-academical teachers, instead of the whole of them within the University, as heretofore. This privilege, accorded to the extra-academical lecturers, however, was subject to certain provisions, the principal being that they should demand the same fee as the professors, for those tickets which are to be received by the medical faculty, and that all future lecturers should be examined by the college, of which they are fellows. We anticipate that the university, the extra-academical school, the students, and medical education generally, will derive great advantages from the new regulation. They have not yet, however, received the sanction of the *Senatus Academicus*; and several professors, as was to be anticipated, are much opposed to them. In the meantime the Colleges of Physicians and Surgeons have made arrangements for the examination of the new lecturers, and it is anticipated that these regulations will come into operation next session.

BOOKS RECEIVED.

1. Transactions of the Provincial Medical and Surgical Association. Instituted 1832. Volume 15. 8vo. London, 1847.
2. The Construction and Government of Lunatic Asylums and Hospitals for the Insane. By John Conolly, M.D., &c. With plans. 8vo. London, 1847.
3. On Wounds and Injuries of the Abdomen and the Pelvis, &c. By G. T. Guthrie, F.R.S. 8vo. London, 1847.
4. Minor Surgery, or Hints on the Every-day Duties of the Surgeon. By Henry H. Smith, M.D., &c. Second edition. Philadelphia, 1846.
5. Outlines of Structural and Physiological Botany. By Arthur Henfrey, F.L.S., &c. With numerous illustrations. 12mo. London, 1847.
6. Remarks on the Diet of Children, and on the Distinctions between the Digestive Powers of the Infant and the Adult. By George T. Gream. 12mo. London, 1847.
7. The Prevention and Treatment of Disease in the Potato and other Crops. By John Parkin, M.D. 8vo. London, 1847.
8. Hassall's Microscopic Anatomy. Part 8.
9. A Treatise on Diet and Regimen. By William Henry Robertson, M.D., &c. Fourth edition. Part I. 12mo. London, 1847.
10. Practical Remarks on the Inhalation of the Vapour of Sulphuric Ether, &c. By W. Philpot Brookes, M.D. 8vo. London, 1847.
11. A History of the Discovery of the Application of Nitrous Oxide Gas, Ether, and other Vapours to Surgical Operations. By Horace Wells. 12mo. Hartford, 1847.
12. Notes on the Application of the Trepphine, to the Treatment of Insanity, the Result of Injury to the Head. By C. Lockhart Robinson, M.D., &c. 8vo. Edinburgh, 1847.
13. Report of the Cumberland Lunatic Asylum, at Dunston Lodge, Gateshead-on-Tyne, for the year ending January 1, 1847. 8vo. Edinburgh, 1847.
14. Observations on the Connexion between Famine and Fever in Ireland and elsewhere. By Henry Kennedy, A.B., M.B.T.C.D., &c. 8vo. Dublin, 1847.
15. Table of Urinary Deposits, with their Tests for Chemical Examination. By Ray Charles Golding, M.D. Folio. London, 1847.
- Case of Large Prostatic Calculus, removed by Pirineal incision. By T. Herbert Barker, M.B., &c., Worcester, 8vo., 1847.
16. Annual Report of the Royal Edinburgh Asylum. For the year 1846. 8vo. Morningside, 1847.
17. Statistical Tables of the Royal Infirmary of Edinburgh, Sixth Series. Compiled by John Hughes Bennett, M.D., &c. 8vo. Edinburgh, 1847.

TO CORRESPONDENTS.

Communications have been received from Professor Schlossberger of Tubingen, and Dr Toogood, of Torquay.

INDEX.

- Abortion, ulceration of cervix uteri a cause of, 233; on influence of quinine in, 384; on the legality of, for a medical object 636.
- Abscess of pelvis opened through the rectum, 78.
- Acupuncture in aneurism, 378.
- Alcohol, on testing the presence of minute quantities of, by Dr R. D. Thomson, 411.
- Ammenorrhœa, on the treatment of, 632.
- Ammonia in burns, 697, 778.
- Amnion, dropsy of an alleged cause of retarded parturition, 546.
- Alison, Professor, on the principle of vital affinity, 137.
- Amputation at the ankle, by Professor Syme, 81; ditto by Mr Syme's method in France, 372; at the thigh by Mr Syme, 321; at the shoulder joint by ditto for axillary aneurism, 401; at the lower third of the leg for disease of the tarsus, 780; double, 850; at the knee, by Dr G. Williamson, 178; tibio-tarsal, by Roux of Toulon, 456; ditto, by Blandin and Jobert of Paris, 615.
- Aneurism, popliteal unsuccessfully treated by compression, by Dr Jonathan Toogood, 903; popliteal, cured by galvanism, 150, 373, 696; on the treatment of, by Professor Syme, 561.
- Anatomy, hand-book of, reviewed, 690.
- Antidote, chemical, to mineral poisons, &c. 315.
- Anus, fissure of, in infants, on, 384.
- Apoplexy, spinal, on, by Dr Peddie, 819.
- Aphonia, pathology and therapeutics of, 145.
- Arachnoid, on the ganglionic character of, 608.
- Arsenic, blood an antidote to, 229; conviction for poisoning with, at the end of ten years, 635; poisoning with in Africa, 635; magnesia, as an antidote for, 154, 158; poisoning with fly-powder, 228.
- Arsenical stains and antimonial distinction between, 230.
- Ascites simple treatment of, by applying blisters, 704.
- Association, Provincial Medical and Surgical Meeting of, 159, 317; British ditto, Transactions reviewed; Report of Meeting Reviewed, 291.
- Assurance, Life, decision as to the effect of suicide on, 154.
- Astringent substances, on the sedative effect of, 156.
- Ayr case of infanticide on medical evidence in, 549.
- Ballingall, Sir G., on the death of White after flogging, 262; 801.
- Bandages, starch, on the use of at Paris, 697.
- Beck, Dr, on the nerves of bones reviewed, 769.
- Begbie, Dr, on the mortality in the Scottish Widows Fund Society, 481; on the relation of rheumatism to chorea, 740.
- Bell, J. Esq., case of primary cancerous infiltration, and ulceration of lungs, 28, 84.
- Beilby, Dr, address on opening of the new hall of the Royal College of Physicians of Edinburgh, 553.
- Belladonna externally in the vomiting of pregnancy, 614; ditto, by the endermic method, 695.
- Bennet, Dr Henry, on inflammation of the uterine neck, 754.
- Bennett, Dr Hughes, contributions to Pathology and rational medicina, 12; 93, 326, 500, 583, 655, 898; on cancer, 709.
- Benzoic acid against incontinence of urine, 695.
- Bismuth, subvalerianate of, 775.
- Bird, Golding on urinary deposits reviewed, 368.
- Blisters, on the dressing of with cotton-wadding, 833.
- Blood, purulent, poisoning of, by Hertzveld, 699; by Hersent, 930.
- Bouillaud's traité de Nosographie médicale reviewed, 196.
- Brain, tubercular, inflammation of, 231; extensive destruction of, with prolongation of life, 301.
- Burn, deformity produced by, cured by operation, 221.
- Burrows on disorders of cerebral circulation, &c., reviewed, 111.
- Calculi, renal, in connection with abortion and nephrotomy, 462.
- Camphor, poisoning with, 228.
- Cancerous diseases, chemical pathology of, 70; Dr Bennett on, 709.
- Cannabis Indica, alarming effect of, in a female, 776.
- Carbonic acid gas, two cases of poisoning by, by Dr John Davidson, 759.
- Caries of teeth, origin of, 925.
- Carotids, ligature of, for erectile tumour of mouth, face, and neck, 67.
- Cataract, statistics of, 781.
- Cell-development, on the theory of, 110.
- Cerebro-spinal cavity, on effusion of blood into, 627.
- Cesarean section successful to both mother and child, 308.
- Cesarian section, in a theological point of view, 234.
- Chemistry, physiological and pathological, review of new works on, 592, 668.
- Chelius, Dr F., on the amputation of the ankle joint, reviewed, 689.
- Child on Indigestion reviewed, 766.
- China Medico-Chirurgical Transactions reviewed, 270.
- Cholera, Asiatic, advance of, 479.
- Chancre abortive, treatment of, 69.
- Christison, Professor, on typhoid fever, apparently from local miasma, 1; on magnesia as an antidote to the presence of arsenic, 158; on scurvy, 873.
- Clark, Sir James, sanative influence of climate, reviewed, 217.
- Clavicle, dislocation of, 303.
- Clinical notes from the Parisian hospitals, 463, 543, 854.
- Coal, &c., on the entrance of, into the blood, 848.
- Cœliac axis, aneurism of, 226.
- Coley's Practical Treatise on Diseases of Children reviewed, 124.
- Colic lead on, 625.
- Concretions, pisiform lithic, by Dr S. Thomson, 244.

- Concretions in appendix vermiformis, 917.
 Confervæ, on the presence of, in alvine dejections, 158.
 Contagious diseases prevention act, 479.
 Cornea, wound of, and effects, 152; on obscurations of, in their histological relations, 459.
 Corpuscles, yellow, of the blood, the effect of iron and hydrosulphuret of ammonia on, 541.
 Creatine and Creatinine, on, 691.
 Cronin, Dr, trial of, for manslaughter, 864.
 Cystifelleotomy, 618.
- Davidson, The late Dr J. H., 720.
 Deaconesses, protestant, for the sick and poor, school for, and other works reviewed, 684.
 Delivery, on the natural period of 78; concealed (twins) 311; alleged wounds during, 477.
 Directory, London and Provincial medical, reviewed, 846.
 Ductus arteriosus, alleged closure of at birth, 385; Berut on closure of, 552.
- Ear, on malformation of the external, with experiments, by Professor Thomson, 420, 729; congenital do. of the ears of a child, by Mr Toynbee, 738.
 Ectropion treated by subcutaneous incision, 927.
 Ectropium and trichiasis, 853.
 Ellis on clinical surgery reviewed, 445.
 Etherisation, 560, 636; progress of, 797; do. 871, 942; on the employment of in the practice of midwifery, by Professor Simpson, 63; 721.
 Encephalocele, congenital, 310.
 Exudation, on the causes of, by Dr Bennett, 500; on the development of, by do., 583, 655, 898.,
 Exhalations, on the means of neutralizing, 227.
 Eye-ball, gonorrhæal inflammation of, 301; 302.
- Femur, excision of head of, 854.
 Fergusson, Professor, on a new method of applying ligatures to tumours, 578.
 Fever, Typhoid, apparently from local miasma, by Professor Christison, 1; on continued, of Great Britain, by Dr C. Ritchie, 247; typhoid, on the treatment of, 624.
 Fistula vesico-vaginal, 777.
 Fleming, J. G., case of suicide, by prussic acid, 12.
 Flogging, on death of White after, Sir G. Ballingall's observations on, 258, 801.
- Fœtal, stomach, on the contents of, by Dr Robinson, 506.
 Follicles, sebaceous, on the animalcules in, by Professor Gruby, 333.
 Fractures, compound, on abscess after, 148.
- Galvano-puncture in aneurism, 150; 373; 696; do. in varix, 377.
 Giessen, medical degrees at, 159.
 Glover on the pathology and treatment of scrofula reviewed, 426.
 Gonorrhœa, on the treatment of, 149.
 Gout, on blood-letting in, 626.
 Graves, Dr, on the nature and treatment of various diseases, 923.
- Gregory, Dr G., elements of practice of medicine, reviewed, 66.
 Gregory, Dr W., Elements of Chemistry reviewed, 690.
 Gruby, Professor, on the animalcules in the sebaceous follicles, 333; on a new bed-side microscope, 418.
 Gullet, extraction of a five franc piece from, 459.
 Guthrie on wounds of arteries reviewed, 280.
 Guy's Hospital Reports reviewed, 355.
- Hall, Dr Marshall, practical observations in medicine reviewed, 603.
 Hamilton, Dr R., his case of imperfect vision from irregular refraction remedied, 891.
 Hæmatemesis from rupture of an artery of the stomach, 144.
 Harty on dysentery, reviewed, 915.
 Haeser on the pathological chemistry of the blood reviewed, 843.
 Hassall's microscopic anatomy reviewed, 947.
 Heart, rupture of left auricle of, 225; on the sounds and motions of, 610; case of malformation of, by Dr Peacock, 644.
 Hemorrhage alveolar, compress for, by Dr R. Reid, 515.
 Henfrey's Botany reviewed, 915.
 Hernia, inguinal, new method of taxis in, 68; of the foramen ovale, 695; results of operation for strangulated, 851.
 Hip-joint, dislocation of, 926.
 Homicide, trial for, at Glasgow, 932.
 Hooper's physician's vade-mecum reviewed, 138.
 Hooping-cough, an exanthema, 461.
 Horny growth on the head, 782.
 Hydrocele cured without injection, 222.
 Hydriodate of potassa against stains of nitrate of silver, 371.
 Hydrocephalus, acute, on, 460.
 Hydropathist, trial of a, for manslaughter, 153.
 Hypertrophy, on the curability of, 463.
 Hysterical affections, on, 547.
- Ice, on the use of, in injuries, 536.
 Iliac arteries, statistics of ligature of, 926.
 Infanticide, trials for, in France, 634.
 Infants, birth of two, united by abdomen, 548.
 Infirmary, Royal, of Edinburgh, new pathological theatre, in, 390.
 Inflammation of Lungs, 141.
 Inoculation in China, 160.
 Iodine and iodide of potassium in the treatment of syphilis, 692.
 Iron, tannate of, in chlorosis, 370; salts of, as antiplogistics, 614.
- Jaw bone, dislocation of, 850.
 Joint, hip, on spontaneous dislocation of, 536.
 Jones, Wharton, on ophthalmic surgery, reviewed, 845.
 Juniper, oil of, in scald head, 614.
- Kennedy, on the epidemic cholera, reviewed, 452.
 Kidney, human, on the intimate structure of, 532; on Bright's disease of, 533, 540; congenital deficiency of, 856.
 King's yellow, case of poisoning with, by D. G. Paterson, 183.

- Labour, influence of galvanism on, by Professor Simpson, 33.
- Laringitis, cured by laryngotomy, 224.
- Larynx, polypous, tumour of, extirpated, 458; perichondritis laryngea, 622.
- Lawrie, J. A. Esq., case of sweating sickness by, 241.
- Lebert's physiological pathology reviewed, 49.
- Lee, on tumours of the uterus, &c., reviewed, 835.
- Leeches, fraud in the sale of, 478.
- Leucorrhœa, on the local treatment of, 632.
- Liebig's relations of physiology to physics, 262; 337; do. reviewed, 905.
- Life Assurance and Scottish Widows Fund, mortality in, by Dr Begbie, 481.
- Ligatures to tumours, new method of applying, by Professor Fergusson, 598.
- Lightning, death by, rigidity of body after, 308.
- Lime-water in chronic inflammation of the bowels, 776.
- Lips, upper and lower, on the restoration of, by Professor Syme, 641.
- Liston's practical surgery reviewed, 66.
- Liver, protrusion of, through the umbilicus, 483.
- Lock Hospital, Edinburgh, statistics of, by Dr Newbigging, 570.
- Lungs, case of primary cancerous infiltration and ulceration of, by Joseph Bell, Esq., 28.
- Maclagan, Dr Douglas, on the urine in a case of urticaria, 156; on dressing blisters with cotton wadding, 883.
- Malgaigne's Manual of Operative Surgery reviewed, 137.
- Mamma, rule for the removal of tumours of, 617.
- Manslaughter, trial for, 153.
- Marshall's Military Miscellany reviewed, 280.
- Matico in hemorrhage, 370.
- Mediastinitis, on, 627.
- Medico-Chirurgical Society of Edinburgh, proceedings of, 156, 557, 705, 783, 787, 792, 933; annual election, 557; ditto of Glasgow, 316; ditto, Royal of London, transactions of, reviewed, 532.
- Meningitis, new symptom of, 230.
- Menstruation, irregular, cold hip bath in, 232.
- Microscope, on a new, for the bed-side, by Professor Gruby, 418.
- Milroy on Quarantine and the Plague, reviewed, 437.
- Morphia, muriate of, case of poisoning with, by Dr G. Paterson, 183; acetate of, in children, 455; salts of, by the endermic method, in neuralgia, 613.
- Mortality, rate of, in Paris, 478.
- Müller's defence against Liebig, reviewed, 448.
- Murder, double, and plea of insanity, 548.
- Muscular contraction, Weber on, 846.
- Myelitis acute, on, 379.
- Myo-tenotomy, 698.
- Nævi subcutaneous, 303.
- Naval Medical Association, 480.
- Negro, change of colour in a, 299.
- Neligan on Medicines, &c., reviewed, 839.
- Nerve fibres, central terminations of, 141.
- Nerve median, excision of, in venesection, with loss of motion, 618.
- Newbigging on the statistics of the Edinburgh Lock Hospital, 570.
- Nose, restoration of, 778.
- Nutrition, anormal, on, 326.
- Obstetric Society of Edinburgh annual election, 717, 794, 867; ditto of Dublin, 938.
- Oophoritis terminating in suppuration, 481.
- Ophthalmia, Egyptian at Mentz, 223. Orbit operation for cancerous tumour of, 780; organic nature, on the balance of, 534.
- Orphila entertained at Madrid, 478.
- Osteophyte, on, in pregnant women, 232.
- Ovarian dropsy, new operation for, 230; apparent cure of, 630; ovariectomy two successful cases, 928.
- Pacini corpuscles, of, on, 297.
- Page Mr, his case of spina bifida, 574.
- Paper on lead copper and arsenic in, 227.
- Parkes on the dysentery and hepatitis of India reviewed, 208.
- Paterson, Dr G., cases of poisoning with King's yellow and muriate of morphia, 183.
- Pathology and rational medicine contributions to, by Dr Hughes Bennett, 20, 93, 326, 500, 583, 655, 898.
- Pathology new, recent works on, reviewed, 517.
- Peacock, table of the weights of organs of human body, 101, 166; his case of malformation of the heart, 644.
- Peddle, Dr, on spinal apoplexy, 819.
- Periosteum, on the physiology of, 774.
- Peritonitis and hernia, 222.
- Phalanges, necrosed excision of, 68.
- Pharynx, post pharyngeal abscess, 146.
- Phlegmasia dolens, in a male, 696.
- Phthisis, pulmonalis, new cause of, 147.
- Physicians, Edinburgh Royal college of, opening of their new hall, 552; annual election of, 557.
- Pirrie, professor, on angular curvatures of the spine, 808.
- Placental, presentation, 79.
- Plague, on the Oriental, 619.
- Poisons, narcotic, on the absorption of, by the lymphatics, 454.
- Pregnancy, abdomino-tubal case of, 633, 929.
- Prisoners, influence of the cell system on the health of, 390.
- Prussic acid, suicide by, by J. G. Fleming, M. D., 12.
- Pneumonia, on, in childhood, 861.
- Prosopalgia connected with suppuration in the antrum of Highmore, 927.
- Pustule, malignant, 372.
- Pyromania and kleptomania on, 313.
- Quack doctor, committed for manslaughter, 559.
- Quain, Dr R., on injuries to the aortic valves during muscular efforts, 405.
- Registration, of, medical practitioners bill for the, 236, 240.
- Reid, Dr R.'s alveolar hemorrhage compress, 516.
- Remak's diagnostic, &c., researches in the clinic of Schönlein, reviewed, 347.

- Rheumatism, on the relation of to Chorea by Dr Begbie, 740; cured by sulphate of Quinine 782; anatomical lesions in, 917; acute with singular succession of maladies, 921.
- Rhino-plastic operation, 851.
- Ritchie, Dr C. on fevers of Great Britain, 247.
- Robinson on the teeth reviewed, 277;
- Robinson, Dr G. on the contents of foetal stomach, 506.
- Royles, *Materia Medica* reviewed, 526.
- Rubeola among the North American Crees by Dr Smellie, 413.
- Sarcina, ventriculi of Goodsir, on, 382.
- Scarlatina at Prague, 920.
- Scorbutus on, 378; Epidemic in Edinburgh, 872, 943; Professor Christison on, 873.
- Scleroma of cellular tissue in new born children, 919.
- Seller, Dr, on the sedative effect of astringent substances, 156.
- Sexual organs, on the structure of, 773.
- Silver, nitrate of, in discharges from the ear, 775.
- Simpson, professor, on the influence of galvanism during labour, 33; on the nature of the membrane occasionally expelled in dysmenorrhœa, 161; on the application of etherisation to obstetric practice, 639, 721, 794; on Gutta Percha for obstetric instruments, 718; on incision of the os uteri in obstructive dysmenorrhœa, 870.
- Seymour, Dr E. J. on nature and treatment of several severe diseases of human body reviewed, 912.
- Smellie, Dr, on Rubeola among the North American crees, 413.
- Smith's minor surgery reviewed, 916.
- Spina, bifida case of, treated successfully by Mr Page, 574.
- Spine on angular curvature of, by Professor Pirrie, 308.
- Stethoscope (The), a poem reviewed, 771.
- Stomach, rupture of, from rapid development of gas, 142.
- Strangulation, homicidal and suicidal.
- Strangulation on the blood after, 226.
- Strychnia in eclampsia, 369; do. nitrate of, in irregular gout, 775.
- Sulphur, the alcohol of, in sciatica, 694.
- Sulphuric acid, poisoning by, 314.
- Sweating sickness, case of, by J. A. Lawrie, Esq., 241.
- Syme, Professor, on amputation at the ankle, 81; on amputation at the thigh, 321; on amputation at the shoulder joint for axillary aneurism, 401; on the treatment of popliteal aneurism, 561; on the restoration of the upper and lower lips, 641; note in reply to Dr Bellingham, 904.
- Symphonoma on, 380.
- Tartar emetic, in large doses, in pneumonia, 703.
- Teeth, molar, in the sublingual region, 537; on caries of, 925.
- Tetanus traumatic cured by ice to the spine, 219; ditto, successfully treated, 304; Mr Pridie's case of, cured by tobacco, 650.
- Thomson, Professor A., on malformation of the external ear, 420, 729.
- Thomson, Dr John, biographical memoir of the late, 391.
- Thomson, Dr S., case of pisiform lithic concretions, 244.
- Thomson (Dr R. D.) on the food of man, &c., reviewed, 364; on testing minute quantities of alcohol, 411.
- Toynbee, Mr, case of congenital malformation in the ears of a child, 738.
- Turpentine, oil of, in collyria, 373.
- Tumour, obscure abdominal, 304; fatty excision of, without pain, 899; tumours, diagnosis of, 853; encysted, 898.
- Trismus nascentium, pathology and treatment of, 74.
- Trophoneurosis, on, 622.
- Tuson on the female breast, reviewed, 216.
- Umbilical cord, absence of, 633.
- Urine, incontinence of, in young persons, 618; analysis of, in cholera sporadica, 305; in dropsy after small pox, 307; on the condition of in urticaria, 156.
- Uteri inversio, 310; cervix, excision of, for cancer, 465; ulceration of, in pregnancy, 483; on the constitution of, 456.
- Uterine hemorrhage, on sulphate of iron in, 232; cavity, on granulations of, 469; neck, on inflammation of, by Dr Henry Bennet, 754.
- Uterus, fibrous tumours and polypi of, during pregnancy, &c., 76; uterine polypi, natural cure of, 233, 483; rupture of, two cases, 547; ulceration of, 545; percussion of, for the diagnosis of pregnancy, by Piorry.
- Vagina, glass pessary, broken in, 309.
- Valves aortic, on injuries to, during muscular efforts, 405.
- Varicocele, treated by subcutaneous ligature, with fatal result, 536.
- Vision, imperfect, from irregular refraction, case of, remedied by Dr R. Hamilton, 891.
- Vital affinity, on the principle of, by Dr Alison, 137.
- Vulva, thrombus of the, 383.
- Water-pepper in amenorrhœa, 371.
- Weights of organs of human body, by Dr Peacock, 101, 166.
- Williamson, Dr G., case of amputation at the knee joint, 178.
- Wilson, Erasmus, on diseases of the skin, reviewed, 675.
- Zinc, vessels of, alleged danger of, 477.



END OF VOL. I. NEW SERIES.



25

